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UK METEOROLOGICAL OFFICE
GLOBAL DATA MONITORING REPORT

July, 1997

Data Assimilation
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1. Introduction

As the WMO-appointed lead centre for monitoring surface marine data, the U.K. Meteorological Office produces monthly statistics on the quality of these observations received at RSMC Bracknell. This report includes this information along with statistics for most other types of data. The figures and tables contained herein are presented according to the agreed standards for the exchange of monitoring results.

The report is based on data received at the UK Meteorological Office Headquarters, Bracknell in time for inclusion into the appropriate analysis. The evaluation of data quality is based on comparison with the appropriate 6-hour global model forecast (background field). Generally, the background field is of high quality except in data sparse areas, tropical regions and areas close to steep orography where care should be taken in interpreting the statistics shown.

Comments or queries on the report are welcome and should be addressed to:-

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2 Global Data Monitoring Statistics

Ships, Fixed buoys, Platforms and Drifting buoys observations

TABLES 1-2 contain lists of the stations which are considered to have returned suspect observations of pressure, windspeed, wind direction or temperature, as appropriate, during the month. The criteria for quality control are given on the header page for each table.

Figures 1 and 2 show 10 degree lat/long box average numbers of SHIP/SYNOP and DRIFTER observations received per day throughout the month at Bracknell and assimilated into model runs. Only data from the main hours of 00 UTC, 06 UTC, 12UTC and 18 UTC are included. Box average values are plotted as the nearest whole number (values of x.5 are rounded up). Where the average is more than 999, then 999 is plotted. A box with no observations is blank. If the 24 hour average >0 but <0.5, then 0 is plotted.

Synop Observations

Table 3 contains a list of stations which are considered to have returned suspect observations of Pressure during the month. The criteria for quality control are given in the header page. The reporting practice of each station is included in the list of statistics.

At RSMC Bracknell, for synoptic stations at or below a height of 500 metres, reported mean sea-level pressure is used in the statistics. If this is unavailable the mean sea-level pressure is calculated from the reported station-level pressure and temperature.

For synoptic stations above 500 metres, the mean sea-level pressure is calculated from the reported station-level pressure and temperature, or, if these are not available the height of a standard pressure-level (e.g.: 850 hPa or 700 hPa). If neither of these are available, the reported mean sea-level pressure is used.

Some stations vary their reporting practice according to the observation hour (e.g.: some stations in the CIS report both mean sea-level and station-level pressure at 00 & 12 UTC, but only mean sea-level pressure at 06 & 18 UTC). For monitoring purposes, reported mean sea-level pressure is stored separately from that calculated from station-level pressure or height of a standard pressure-level. Only statistics for the preferred method (see above) are presented in this report, and so for certain high-level stations, such as those from the CIS, approximately half of the number of observations actually received will appear in the statistics.

Aircraft observations

TABLE 4 contains a list of statistics calculated from data received from all airline carriers.

Figure 3 shows 10 degree lat/long box average numbers of AIREP/ASDAR/ACARS reports received per day throughout the month at Bracknell and assimilated into model runs in the layer 70-500 hPa. Observations with a vector wind difference (compared with the model background field) of >60 $m\ s^{-1}$ have been excluded. Box average values are plotted as the nearest whole number (values of x.5 are rounded up). Where the average is more than 999, then 999 is plotted. A box with no observations is blank. If the 24 hour average >0 but <0.5, then 0 is plotted.

Figures 4-7 show wind statistics for AIREP/ASDAR/ACARS in the layer 70-500 hPa. Observations with a vector wind difference > 60 $m\ s^{-1}$ have been excluded. Statistics have not been calculated for 10 degree lat/long boxes containing <31 observations.

Figure	Parameter
4	Mean wind vectors
5	Mean observation - background wind vector
6	Mean observation-background speed ($m\ s^{-1}$)
7	RMS observation-background vector ($m\ s^{-1}$)

Radiosonde Observations

TABLES 5-7 contain lists of the stations which are considered to have returned suspect observations of geopotential height, vector wind or wind direction, as appropriate, during the month. The criteria for quality control are given on the header page for each table.

Figures 8 and 9 show 10 degree lat/long box average numbers of TEMP 500 hPa GEOPOTENTIAL HEIGHT and TEMP/PILOT 300 hPa WIND observations received per day throughout the month at Bracknell and assimilated into model runs. Data from all hours are included. Box average values are plotted as the nearest whole number (values of x.5 are rounded up). Where the average is more than 999, then 999 is plotted. A box with no observations is blank. If the 24 hour average >0 but <0.5, then 0 is plotted.

APPENDIX I shows details of the gross error limits used in TABLES 5 and 6 and the weights used in the RMS values in TABLE 5.

Satellite Observations

Figures 10-24 show satellite wind statistics for all geostationary satellites. All plots other than **AVAILABILITY** show average data where there are > 10 observations in a 10 degree lat/long box.

Figure	Parameter Plotted	Layer (hPa)
10	Availability/average daily number	701-1000
11	Vector mean wind (observed)	701-1000
12	Observation-background vector wind difference	701-1000
13	Mean observation-background speed differences	701-1000
14	RMS observation-background vector difference	701-1000
15	Availability/average daily number	401-700
16	Vector mean wind (observed)	401-700
17	Observation-background vector wind difference	401-700
18	Mean observation-background speed differences	401-700
19	RMS observation-background vector difference	401-700
20	Availability/average daily number	101-400
21	Vector mean wind (observed)	101-400
22	Observation-background vector wind difference	101-400
23	Mean observation-background speed differences	101-400
24	RMS observation-background vector difference	101-400

Figures 25-27 show satellite mean observation-background temperature differences for NOAA-12 soundings at 500 km resolution and figures 28-30 show the same statistics for NOAA-14. Data are plotted where there are > 30 observations in a 10 degree lat/long box.

N.B. 500 km SATEMs are no longer assimilated into the UKMO global Unified Model. Both 500 km and 120 km SATEMs were replaced on 16th April 1996 by 120 km resolution temperature profiles produced locally from the radiances disseminated by NESDIS (from NOAA-12 and NOAA-14).

Figure	Layer (hPa)
25/28	850-1000
26/29	100-300
27/30	30-50

3 Composite Observing Systems for the North Atlantic (COSNA)

This section shows statistics for upper air (radiosonde and aircraft) and surface (drifter) data for the North Atlantic area for data received at Bracknell during the month.

TABLE 8 shows quality statistics for **Mean Sea-level Pressure, Windspeed and Wind Direction** received at Bracknell in DRIFTER code during the month for the area
10°N - 80°N, 85°W - 0°W.

TABLE 9 shows quality statistics for **Temperature and Vector Wind** received at Bracknell from aircraft during the month for the area 40°N - 70°N, 60°W - 0°W.

Table 10 - 13 show quality statistics **(Geopotential Height and Windspeed at 100 and 500 hPa)** for all TEMPSHIPS in the area bounded by 0°N - 90°N, 100°W - 40°E and selected TEMP stations within the same area.

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Revisions

May 95 Monitoring statistics for NOAA-11 removed. Figures 25-27 now show data for NOAA-12
May 95 Notes giving details of observations included in wind direction statistics clarified and corrected.
3. August 95 Monitoring statistics for NOAA-14 added with figures 28-30.
4. February 96 Monitoring statistics for GOES-7 have been replaced by statistics for GOES-8 and GOES-9.
5. February 97 Monitoring statistics for Meteosat 5 have been replaced by statistics for Meteosat 6.

TABLE 1

MONITORING OF MARINE SURFACE OBSERVATIONS
MONTHLY SUSPECT LIST - SHIPS, FIXED BUOYS AND PLATFORMS
MONITORING CENTRE: BRACKNELL
MONTH: July, 1997

Monitoring procedures		
Period		:One calendar month.
Data monitored		:Reports from each unique identifier for ships, fixed buoys and platforms.
Standard of comparison		:Background field from Bracknell global model.
Observation times		:00, 06, 12, 18 UTC
Elements monitored		:Mean sea level pressure (hPa). :Wind speed (m s^{-1}). :Wind direction (Degrees).
Parameters monitored		
	:NOBS	:Number of observations received excluding duplicates.
	:NGE	:Number of observations with gross errors.
	:PGE	:Percentage of observations with gross errors.
	:SD	:SD of difference of observations from background values excluding those with gross errors.
	:BIAS	:Mean difference of observations from background values excluding those with gross errors. **N.B. a positive bias indicates the observation is veered to the background.**
	:RMS	:Root Mean Square difference of observations from background values excluding those with gross errors.

GROSS ERROR LIMIT	:15 hPa (pressure) :25 m s^{-1} (vector wind)		
SELECTION CRITERIA	:NOBS	≥ 20 , and one or more of the following:	
	1.$\lvert bias \rvert$	≥ 4 hPa	(pressure),
		≥ 5 m s^{-1}	(wind speed),
		≥ 30 degrees	(direction).
	2.SD	≥ 6 hPa	(pressure),
		≥ 80 degrees	(direction).
	3.PGE	≥ 25	

N.B. Observations of wind direction are only included in the wind direction statistics if the observed OR background wind speed > 5 m s^{-1}

IDENTIFIER	HOUR	ELEM	LEVEL	NOBS	NGE	PGE	SD	BIAS	RMS
MEAN SEA LEVEL PRESSURE									
CG2248	ALL	MSLP	SUR	60	60	100	0.0	0.0	0.0
CYGR	ALL	MSLP	SUR	25	21	84	4.2	-8.7	9.6
C6FA6	ALL	MSLP	SUR	23	0	0	0.7	-6.1	6.1
DOWVD2D	ALL	MSLP	SUR	35	0	0	1.2	5.8	5.9
EUAF	ALL	MSLP	SUR	28	0	0	3.0	6.2	6.9
J8EL6	ALL	MSLP	SUR	72	0	0	1.4	-5.9	6.0
LAMK4	ALL	MSLP	SUR	29	1	3	3.5	-4.3	5.6
LAXS2	ALL	MSLP	SUR	51	0	0	1.2	6.3	6.4
P3NE5	ALL	MSLP	SUR	25	0	0	1.5	8.2	8.3
SYMK	ALL	MSLP	SUR	24	1	4	2.9	6.5	7.1
S6CL	ALL	MSLP	SUR	52	0	0	1.4	5.5	5.7
UCJL	ALL	MSLP	SUR	51	1	2	1.3	9.6	9.7
UHVW	ALL	MSLP	SUR	25	0	0	2.0	4.1	4.5
UITJ	ALL	MSLP	SUR	31	0	0	0.9	-11.5	11.5
VCJW	ALL	MSLP	SUR	25	25	100	0.0	0.0	0.0
VCPT	ALL	MSLP	SUR	24	18	75	4.5	-5.3	7.0
VCQL	ALL	MSLP	SUR	29	0	0	1.2	-5.7	5.8
VOCZ	ALL	MSLP	SUR	22	1	5	1.5	-4.1	4.4
V2SA	ALL	MSLP	SUR	31	10	32	1.5	-13.2	13.3
V7AS7	ALL	MSLP	SUR	72	0	0	1.5	8.1	8.2
WUZ7811	ALL	MSLP	SUR	86	7	8	6.5	-2.9	7.1
3EIY6	ALL	MSLP	SUR	30	2	7	1.6	11.1	11.3
3EMW5	ALL	MSLP	SUR	21	10	48	6.5	-6.1	8.9
3FKZ3	ALL	MSLP	SUR	54	0	0	1.0	4.3	4.4
3FTJ4	ALL	MSLP	SUR	20	0	0	0.9	10.1	10.2
31024	ALL	MSLP	SUR	458	208	45	0.9	6.8	6.9
9MCP6	ALL	MSLP	SUR	22	0	0	0.8	7.1	7.2
WIND SPEED									
DGGE	ALL	SPEED	SUR	22	0	0	5.4	9.1	10.5
DXQC	ALL	SPEED	SUR	30	1	3	3.7	5.5	6.6
ELAX2	ALL	SPEED	SUR	42	0	0	4.8	9.1	10.3
ELDT6	ALL	SPEED	SUR	25	0	0	2.2	5.2	5.6
FNOU	ALL	SPEED	SUR	27	0	0	5.3	6.5	8.4
GQEK	ALL	SPEED	SUR	24	1	4	5.2	10.6	11.8
MKYJ8	ALL	SPEED	SUR	40	0	0	4.7	8.5	9.7
MSET3	ALL	SPEED	SUR	35	2	6	7.2	8.7	11.3
PPXI	ALL	SPEED	SUR	34	0	0	3.0	6.2	6.9
VNGK	ALL	SPEED	SUR	50	2	4	6.4	9.1	11.1
V7AI	ALL	SPEED	SUR	25	0	0	6.6	10.7	12.6
V7AI9	ALL	SPEED	SUR	20	0	0	6.9	5.9	9.0
Y5CC	ALL	SPEED	SUR	54	0	0	4.5	5.2	6.9
3EJO6	ALL	SPEED	SUR	25	0	0	3.6	5.2	6.3
3EMW5	ALL	SPEED	SUR	21	17	81	2.9	14.1	14.4
3FHE4	ALL	SPEED	SUR	33	0	0	4.1	6.0	7.3
3FSL4	ALL	SPEED	SUR	33	1	3	3.6	6.9	7.8
9VMY	ALL	SPEED	SUR	22	1	5	7.5	7.5	10.6
WIND DIRECTION									
J8EL6	ALL	DIRN.	SUR	32	0	0	109.2	0.3	109.2
LAMK4	ALL	DIRN.	SUR	26	0	0	62.7	-47.5	78.6
V7AL5	ALL	DIRN.	SUR	31	0	0	39.6	-30.6	50.1
ZCBE7	ALL	DIRN.	SUR	22	0	0	66.7	-30.7	73.4
3EMW5	ALL	DIRN.	SUR	21	17	81	18.0	-156.8	157.9
32316	ALL	DIRN.	SUR	28	0	0	26.6	47.9	54.7
45001	ALL	DIRN.	SUR	38	0	0	25.1	-30.4	39.4
45006	ALL	DIRN.	SUR	35	0	0	35.0	-39.8	53.0
45141	ALL	DIRN.	SUR	27	0	0	27.3	-46.7	54.1
46030	ALL	DIRN.	SUR	95	0	0	20.6	30.8	37.1
46145	ALL	DIRN.	SUR	59	0	0	30.4	-31.8	44.0
46146	ALL	DIRN.	SUR	39	0	0	56.8	-34.5	66.4
51021	ALL	DIRN.	SUR	37	0	0	92.9	-50.2	105.6
52010	ALL	DIRN.	SUR	53	0	0	48.6	-84.4	97.4
62304	ALL	DIRN.	SUR	87	0	0	30.8	-31.8	44.3

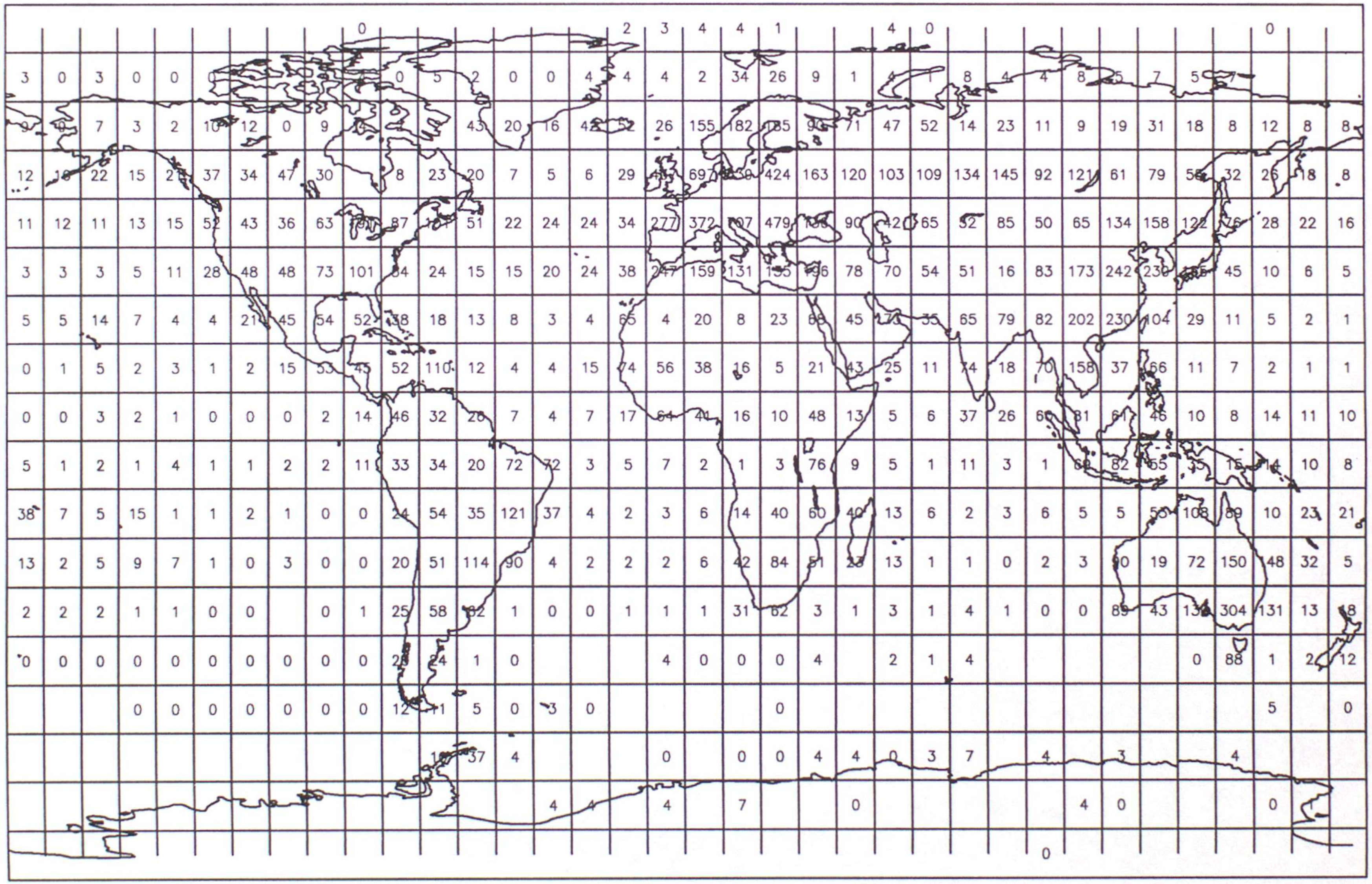
AVAILABILITY – SHIP/SYNOP – JULY 1997

FIGURE 1

MAIN HOURS ONLY

10 DEGREE BOX AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS

GLOBAL AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS = 18671



									0							2	3	4	4	1			4	0									0		
3	0	3	0	0	0				[illegible]	0	5	2	0	0	4	4	4	2	34	26	9	1	4	1	8	4	4	8	5	7	5	7			
9	[illegible]	7	3	2	10	12	0	9	[illegible]	[illegible]	[illegible]	43	20	16	42	52	26	155	182	135	[illegible]	71	47	52	14	23	11	9	19	31	18	8	12	8	8
12	[illegible]	22	15	[illegible]	37	34	47	30		8	23	20	7	5	6	29	[illegible]	697	[illegible]	424	163	120	103	109	134	145	92	121	61	79	58	32	26	18	8
11	12	11	13	15	52	43	36	63	[illegible]	87	[illegible]	51	22	24	24	34	277	372	[illegible]	479	[illegible]	90	[illegible]	65	52	85	50	65	134	158	122	76	28	22	16
3	3	3	5	11	28	48	48	73	101	84	24	15	15	20	24	38	247	159	131	[illegible]	[illegible]	78	70	54	51	16	83	173	242	230	[illegible]	45	10	6	5
5	5	14	7	4	4	21	45	54	52	38	18	13	8	3	4	65	4	20	8	23	[illegible]	45	[illegible]	35	65	79	82	202	230	104	29	11	5	2	1
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0	0	3	2	1	0	0	0	2	14	46	32	26	7	4	7	17	64	41	16	10	48	13	5	6	37	26	60	[illegible]	61	46	10	8	14	11	10
5	1	2	1	4	1	1	2	2	11	33	34	20	72	72	3	5	7	2	1	3	76	9	5	1	11	3	1	[illegible]	82	65	35	15	14	10	8
38	7	5	15	1	1	2	1	0	0	24	54	35	121	37	4	2	3	6	14	40	60	40	13	6	2	3	6	5	5	55	108	89	10	23	21
13	2	5	9	7	1	0	3	0	0	20	51	114	90	4	2	2	2	6	42	84	51	23	13	1	1	0	2	3	90	19	72	150	148	32	5
2	2	2	1	1	0	0		0	1	25	58	82	1	0	0	1	1	1	31	62	3	1	3	1	4	1	0	0	89	43	[illegible]	304	131	13	18
0	0	0	0	0	0	0	0	0	0	28	24	1	0				4	0	0	0	4		2	1	4						0	88	1	2	12
			0	0	0	0	0	0	0	12	11	5	0	3	0					0													5		0
											[illegible]	37	4				0		0	0	4	4	0	3	7		4		3			4			
														4	4		4		7			0						4	0				0		
																											0								

TABLE 2

MONITORING OF MARINE SURFACE OBSERVATIONS
MONTHLY SUSPECT LIST - DRIFTING BUOYS
MONITORING CENTRE: BRACKNELL
MONTH: July, 1997

Monitoring procedures		
Period		:One calendar month.
Data monitored		:Reports from each unique identifier for drifting buoys.
Standard of comparison		:Background field from Bracknell global model.
Position		:Average latitude and longitude for period.
Observation times		:00, 06, 12, 18 UTC
Elements monitored		:Mean sea level pressure (hPa). :Wind speed (m s^{-1}). :Wind direction (degrees).
Parameters monitored		
	:NOBS	:Number of observations received excluding duplicates.
	:NGE	:Number of observations with gross errors.
	:PGE	:Percentage of observations with gross errors.
	:SD	:SD of difference of observations from background values excluding those with gross errors.
	:BIAS	:Mean difference of observations from background values excluding those with gross errors. **N.B. a positive bias indicates the observation is veered to the background.**
	:RMS	:Root Mean Square difference of observations from background values excluding those with gross errors.

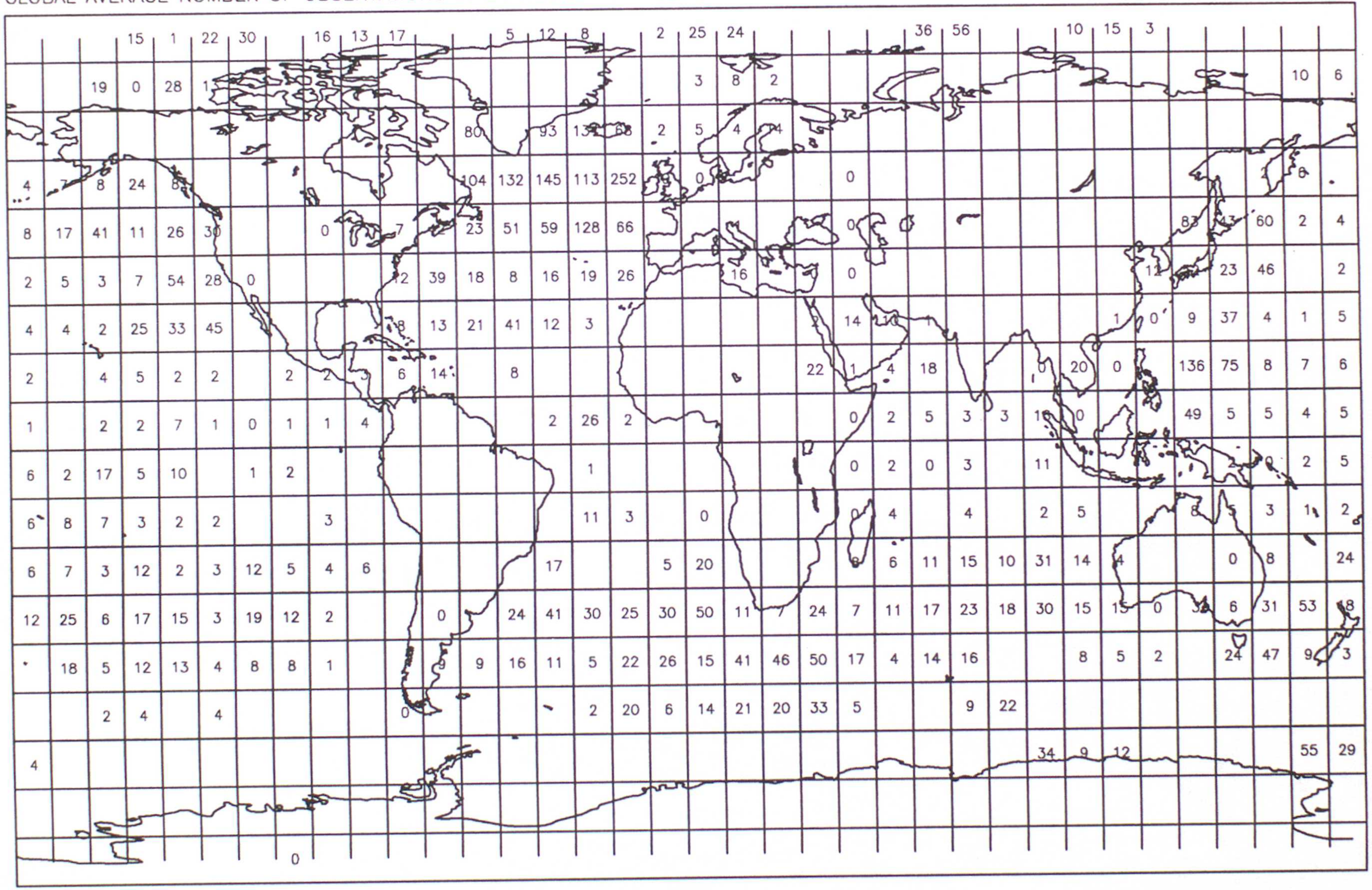
GROSS ERROR LIMIT	:15 hPa	(pressure)	
	:25 m s^{-1}	(vector wind)	
SELECTION CRITERIA :	NOBS	≥ 20 , and one or more of the following:	
	1.¦bias¦	≥ 4 hPa	(pressure),
		≥ 5 m s^{-1}	(wind speed),
		≥ 30 degrees	(direction).
	2.SD	≥ 6 hPa	(pressure),
		≥ 80 degrees	(direction).
	3.PGE	≥ 25.	

N.B. Observations of wind direction are only included in the wind direction statistics if the observed OR background wind speed > 5 m s^{-1}

IDENTIFIER	LAT.	LONG.	HOUR	ELEM	LEVEL	NOBS	NGE	PGE	SD	BIAS	RMS
MEAN SEA LEVEL PRESSURE											
23515	13.2	62.7	ALL	MSLP	SUR	49	7	14	1.8	4.3	4.7
23946	35.7	-162.0	ALL	MSLP	SUR	86	86	100	0.0	0.0	0.0
33576	-55.5	-97.3	ALL	MSLP	SUR	128	56	44	4.0	-0.7	4.1
33946	-34.6	-42.2	ALL	MSLP	SUR	242	20	8	6.1	1.2	6.2
33952	-40.8	-9.9	ALL	MSLP	SUR	90	48	53	4.2	7.6	8.7
46770	47.8	-122.3	ALL	MSLP	SUR	156	0	0	0.8	-11.7	11.8
51636	44.7	-63.6	ALL	MSLP	SUR	25	0	0	0.8	-4.5	4.6
51671	-0.9	-151.1	ALL	MSLP	SUR	109	109	100	0.0	0.0	0.0
55516	24.4	50.7	ALL	MSLP	SUR	283	0	0	1.0	-4.0	4.2
WIND SPEED											
62518	42.6	-14.5	ALL	SPEED	SUR	27	0	0	1.1	-6.5	6.6
62803	59.0	-12.2	ALL	SPEED	SUR	517	1	0	3.3	-5.6	6.5
WIND DIRECTION											
48531	76.3	-132.8	ALL	DIRN.	SUR	57	0	0	31.9	-32.1	45.3
62697	53.9	-41.9	ALL	DIRN.	SUR	97	0	0	74.8	40.2	84.9
91704	9.9	139.7	ALL	DIRN.	SUR	22	0	0	34.5	-31.0	46.4
91874	8.7	172.2	ALL	DIRN.	SUR	32	0	0	26.4	-36.7	45.2

AVAILABILITY – DRIFTER – JULY 1997
MAIN HOURS ONLY
10 DEGREE BOX AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS
GLOBAL AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS = 5255

FIGURE 2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19 0 28 1 3 8 2 10 6
80 93 13 68 2 5 4 4
4 7 8 24 8 104 132 145 113 252 0 0 0 2 8
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2 5 3 7 54 28 0 12 39 18 8 16 19 26 16 0 12 23 46 2
4 4 2 25 33 45 8 13 21 41 12 3 2 14 16 1 1 0 9 37 4 1 5
2 4 5 2 2 2 2 3 6 14 8 22 1 4 18 0 20 0 136 75 8 7 6
1 2 2 7 1 0 1 1 4 2 26 2 0 2 5 3 3 16 0 49 5 5 4 5
6 2 17 5 10 1 2 1 0 2 0 3 11 2 0 2 5
6 8 7 3 2 2 3 11 3 0 0 4 4 2 5 8 5 3 1 2
6 7 3 12 2 3 12 5 4 6 17 5 20 8 6 11 15 10 31 14 4 0 8 24
12 25 6 17 15 3 19 12 2 0 24 41 30 25 30 50 11 7 24 7 11 17 23 18 30 15 15 0 32 6 31 53 18
18 5 12 13 4 8 8 1 9 9 16 11 5 22 26 15 41 46 50 17 4 14 16 8 5 2 24 47 9 3
2 4 4 0 2 20 6 14 21 20 33 5 9 22
4 34 9 12 55 29
0

TABLE 3

MONITORING OF LAND SURFACE OBSERVATIONS
MONTHLY SUSPECT LIST - SYNOPS & AUTOSYNOPS
MONITORING CENTRE: BRACKNELL
MONTH: July, 1997

Monitoring procedures

Period		:One calendar month.
Data monitored		:Reports from each unique identifier for synops & autosynops.
Standard of comparison		:Background field from Bracknell global model.
Observation times		:00, 06, 12, 18 UTC
Elements monitored		:Mean sea level pressure (hPa).
Parameters monitored	:HT(m)	:Station height (in metres) as given in WMO No. 9 Vol A
	:RP	:Pressure reporting practice M=mean sea level pressure (hPa) reported. S=Station level pressure reported. 8=Geopotential height (m) of 850 hPa surface reported. 7=Geopotential height (m) of 700 hPa surface reported.
	:NOBS	:Number of observations received excluding duplicates.
	:NGE	:Number of observations with gross errors.
	:PGE	:Percentage of observations with gross errors.
	:%REJ	:Percentage of observations flagged.
	:SD	:SD of difference of observations from background values excludi. those with gross errors.
	:BIAS	:Mean difference of observations from background values excluding those with gross errors.
	:RMS	:Root Mean Square difference of observations from background values excluding those with gross errors.
GROSS ERROR LIMIT	:15 hPa	(pressure)
SELECTION CRITERIA	:NOBS	≥ 20 ,and one or more of the following:
	1.¦bias¦	≥ 4 hPa
	2. SD	≥ 6 hPa
	3.PGE	≥ 25.

N.B. For stn ht ≥ 500m, mslp is that calculated from station level pressure where available.
For stn ht < 500m, mslp is that as reported by the station where available.

WMO REGION 1:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
60010	28.3N	16.5W	2368	S7	86	0	0	59	1.7	-5.1	5.4
60445	36.2N	5.4E	1081	S8	109	0	0	1	1.2	4.6	4.8
60468	35.6N	6.2E	1052	S8	104	103	99	0	0.0	1.4	1.4
60511	35.3N	1.4E	1127	S8	113	111	98	0	0.6	14.3	14.3
60535	34.7N	3.3E	1144	S8	72	2	3	1	1.1	-5.7	5.8
60571	31.6N	2.2W	773	S8	111	0	0	0	1.1	-4.5	4.6
60670	24.6N	9.5E	1054	S8	102	1	1	94	1.5	8.0	8.1
61233	15.2N	7.3W	265	M	71	0	0	0	1.4	-4.1	4.3
62402	26.2N	32.7E	77	M	27	27	100	0	0.0	0.0	0.0
63330	13.5N	39.5E	2212	MS	52	0	0	0	0.8	-4.6	4.7
63333	11.1N	39.7E	1916	MS	79	0	0	0	1.0	6.6	6.7
63402	7.7N	36.8E	1577	MS	20	0	0	10	2.2	-10.2	10.4
63453	8.8N	39.8E	1062	S	51	8	16	0	1.6	12.2	12.3
63478	5.1N	44.6E	320	MS	52	0	0	0	1.2	6.5	6.6
68014	19.6S	18.1E	1411	S8	93	0	0	81	1.1	-6.0	6.1
68442	29.1S	26.3E	1354	S8	111	0	0	0	0.8	-5.7	5.8
68488	28.4S	31.1E	1279	S8	48	48	100	0	0.0	0.0	0.0
68752	32.8S	27.4E	524	S8	98	0	0	0	1.0	-8.5	8.6

WMO REGION 2:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
30320	56.9N	105.7E	669	MS	59	58	98	0	0.0	-11.8	11.8
30554	54.5N	113.6E	995	MS	58	0	0	29	1.4	10.2	10.3
35173	51.6N	69.8E	620	MS	54	54	100	0	0.0	0.0	0.0
40701	39.3N	44.4E	1470	MS	40	0	0	0	1.4	6.0	6.2
40719	37.2N	49.6E	37	MS	42	0	0	7	1.3	4.2	4.4
40743	36.2N	57.7E	941	MS	110	0	0	0	0.8	-5.2	5.3
40762	35.3N	59.2E	1333	MS	109	6	6	0	1.8	-13.4	13.5
40763	35.2N	58.5E	1060	MS	23	0	0	0	0.7	-6.2	6.2
40783	32.4N	49.7E	1972	MS	41	1	2	0	0.7	-5.6	5.6
40789	33.8N	55.1E	921	MS	40	1	3	0	1.1	7.7	7.8
40798	32.3N	50.9E	1991	MS	40	0	0	0	0.7	-7.8	7.8
40836	30.8N	51.7E	1880	S	29	1	3	3	0.9	7.6	7.7
40859	29.0N	53.7E	1383	MS	38	0	0	3	1.0	8.6	8.7
41254	23.1N	57.7E	1755	S8	59	59	100	0	0.0	0.0	0.0
41396	16.0N	48.9E	700	MS	34	0	0	0	1.5	6.2	6.4
41466	13.7N	44.1E	1385	8	26	1	4	0	0.7	-5.9	5.9
44298	46.4N	108.2E	1286	MS	74	1	1	50	2.0	4.8	5.2
44416	28.6N	81.6E	720	MS	70	0	0	20	2.2	4.6	5.1
44477	27.0N	87.4E	1445	S8	73	73	100	0	0.0	0.0	0.0
52602	38.8N	93.4E	2734	S	121	0	0	0	1.6	-4.8	5.1
56144	31.8N	98.6E	3185	S	115	1	1	8	1.9	-4.2	4.6
56444	28.5N	98.9E	3488	S	115	115	100	0	0.0	0.0	0.0
56462	29.0N	101.5E	2994	S	111	0	0	0	1.7	7.7	7.9

WMO REGION 3:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
82704	7.6S	72.7W	170	MS	74	1	1	1	1.4	-4.7	4.9
82825	8.8S	63.9W	95	MS	49	3	6	31	3.4	-7.9	8.6
82915	10.0S	67.8W	136	MS	71	0	0	25	1.2	-4.3	4.5
83214	10.3S	54.9W	285	MS	51	4	8	8	1.0	-7.4	7.5
83235	12.4S	46.4W	660	MS	79	1	1	4	1.4	6.8	6.9
83295	13.4S	39.9W	755	MS	53	0	0	96	0.6	-4.1	4.1
83319	14.7S	52.4W	315	MS	51	0	0	0	1.0	-5.0	5.1
83332	14.1S	46.4W	950	MS	79	43	54	0	1.1	13.8	13.8
83408	14.3S	43.8W	556	MS	75	1	1	0	0.9	11.0	11.0
83423	16.7S	49.3W	729	MS	80	1	1	1	1.1	-5.4	5.5

WMO REGION 3:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
83488	17.8S	42.9W	1097	MS	78	78	100	0	0.0	0.0	0.0
83531	18.6S	46.5W	896	MS	52	2	4	0	0.9	-7.6	7.7
83577	19.8S	47.9W	743	MS	26	0	0	4	1.1	-4.0	4.1
83587	19.9S	43.9W	850	MS	79	0	0	0	1.2	-8.3	8.4
83689	21.3S	43.8W	1171	MS	72	0	0	0	1.1	4.5	4.6
83704	22.3S	53.9W	369	MS	41	9	22	32	1.3	-10.1	10.2
83773	23.1S	48.9W	793	S	33	0	0	0	0.8	-5.6	5.7
83836	25.5S	50.6W	837	MS	82	1	1	1	1.1	-4.2	4.3
83916	28.2S	51.5W	806	MS	81	0	0	0	1.1	-4.6	4.7
84401	5.2S	80.6W	55	MS	91	0	0	10	1.5	4.8	5.0
84455	6.5S	76.4W	282	MS	60	1	2	3	3.2	7.1	7.8
84472	7.1S	78.5W	2622	S	42	0	0	0	1.0	-6.2	6.3
84501	8.1S	79.0W	30	MS	93	0	0	1	1.3	4.8	5.0
84542	9.4S	77.6W	2760	S	34	1	3	3	1.8	4.5	4.8
84686	13.6S	72.0W	3249	S	97	0	0	1	1.9	-4.4	4.8
84782	18.1S	70.3W	469	MS	88	0	0	0	1.6	9.0	9.1
85264	18.5S	64.1W	1998	S	50	0	0	12	1.8	-4.0	4.4
85312	19.8S	63.9W	992	S	40	2	5	63	1.9	-7.0	7.3
85394	22.8S	64.3W	381	MS	39	0	0	21	3.1	4.2	5.2
85406	18.3S	70.3W	58	M	123	1	1	5	1.6	7.4	7.6
85418	20.5S	70.2W	48	M	120	0	0	0	1.4	5.2	5.4
85442	23.4S	70.4W	135	M	121	0	0	1	1.5	4.7	4.9
88897	52.4S	59.1W	15	M	76	0	0	33	2.8	-5.3	6.0

WMO REGION 4:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
71094	66.7N	61.4W	722	MS	124	0	0	7	1.1	-4.0	4.1
76118	30.4N	109.7W	1040	MS	48	1	2	0	1.0	-11.2	11.2
76539	22.1N	101.0W	1870	MS	76	0	0	0	0.9	-4.4	4.5
76625	20.6N	100.4W	1813	MS	27	0	0	4	1.3	-8.8	8.9
76632	20.1N	98.7W	2417	MS	31	1	3	87	0.7	-5.5	5.5
76634	20.1N	98.4W	2135	MS	66	1	2	82	1.1	-5.0	5.1
76658	19.2N	103.7W	494	MS	42	0	0	0	1.5	5.5	5.7
76698	19.6N	88.0W	20	MS	76	0	0	95	1.1	-5.7	5.8
76762	17.5N	99.5W	1865	MS	72	71	99	0	0.0	10.8	10.8
78627	15.3N	91.5W	1901	S	30	0	0	0	2.5	5.4	6.0
78714	14.9N	85.9W	442	MS	52	0	0	58	3.5	4.8	5.9

WMO REGION 5:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
91339	5.5N	153.8E	3	MS	50	0	0	16	3.0	-5.5	6.3
94623	31.9S	116.8E	175	MS	62	0	0	98	1.3	5.7	5.8
94955	41.6S	145.7E	684	MS	160	160	100	0	0.0	0.0	0.0

WMO REGION 6:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
02045	67.8N	20.4E	408	M	122	122	100	0	0.0	0.0	0.0
11024	48.4N	15.4E	860	S8	122	1	1	0	0.9	-12.7	12.7
16020	46.5N	11.3E	1461	MS	105	105	100	0	0.0	0.0	0.0
16227	41.9N	13.6E	655	MS	124	124	100	0	0.0	0.0	0.0
16549	39.1N	8.3E	12	MS	124	0	0	0	1.0	-4.3	4.4
16614	40.4N	21.3E	604	MS	106	0	0	0	1.4	-7.3	7.4

ANTARCTIC:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
89324	80.0S	120.0W	1530	S	89	4	4	13	4.4	-4.9	6.6
89345	89.7S	148.8W	620	S	89	69	78	89	4.7	-8.5	9.7
89606	78.5S	106.9E	3490	S7	117	17	15	0	4.3	8.8	9.8
89664	77.9S	166.7E	24	MS	39	0	0	0	3.4	-4.5	5.6
89744	74.0S	43.0E	3353	S	85	1	1	13	3.4	6.0	6.9
89860	74.2S	160.3E	1772	S	81	3	4	25	4.8	-6.2	7.8

TABLE 4

MONTHLY MONITORING OF AIRCRAFT OBSERVATIONS
MONITORING CENTRE: BRACKNELL
MONTH: July, 1997

Monitoring procedures

Period :One calendar month.

Data monitored :Statistics for each airline carrier.

Area monitored :90°N - 90°S, 180°W - 180°E.

Standard of comparison :Background field from Bracknell global model.

Observation times :All hours combined.

Level(s) monitored :70.0 - 500.0 hPa

Elements monitored :TEMP in °C ; WIND in m s^{-1}

Parameters monitored

:N REP. :Number of observations received excluding duplicates.

:PG :Percentage of observations with gross errors.

:PR :Percentage of observations rejected by quality control including rejections from the duplicate check.

:PC :Percentage of observations with calm winds.

:RMS :Root Mean Square difference of observations from background values excluding those with gross errors in Temperature & vector wind.

:BIAS :Mean difference of observations from background values excluding those with gross errors in Temperature & Wind Speed.

GROSS ERROR LIMITS :10.0 °C ; 60 m s^{-1} Vector Wind

SELECTION CRITERIA :N REP $\geq$ 20

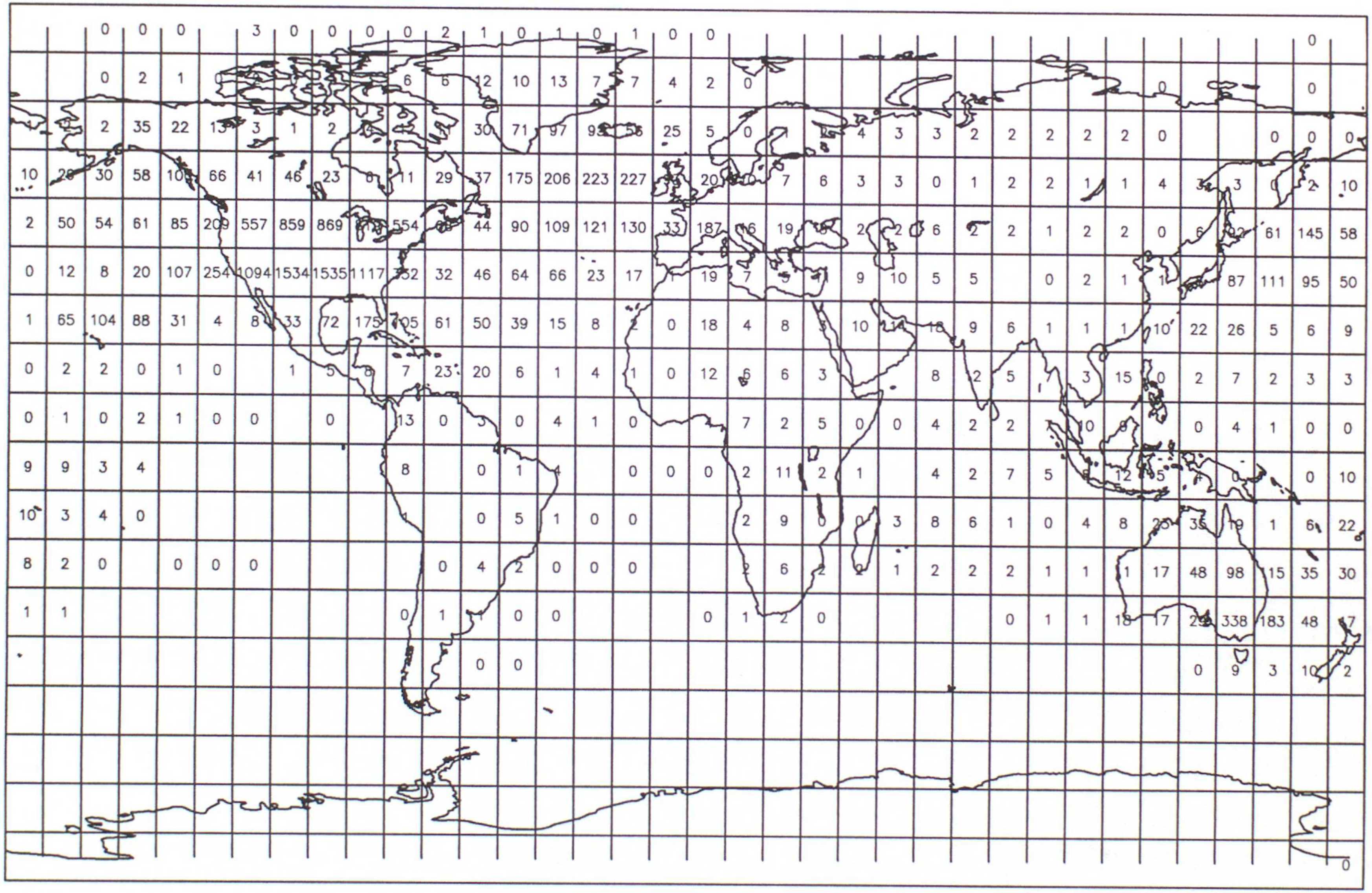
NO TABULAR DATA AVAILABLE FOR JULY 1997

MEAN DAILY COUNT OF AIRCRAFT 70 – 500 HPA

FIGURE 3

JULY 1997

OBSERVATIONS WITH O–B VECTOR DIFFERENCE GREATER THAN 60 MPS EXCLUDED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2 35 22 13 3 1 2 30 71 97 93 56 25 5 0 4 3 3 2 2 2 2 2 0 0 0 0
10 28 30 58 10 66 41 46 23 11 29 37 175 206 223 227 20 7 6 3 3 0 1 2 2 1 1 4 3 3 2 10
2 50 54 61 85 209 557 859 869 554 44 90 109 121 130 33 187 16 19 2 2 6 2 2 1 2 2 0 6 61 145 58
0 12 8 20 107 254 1094 1534 1535 1117 352 32 46 64 66 23 17 1 19 7 5 11 9 10 5 5 0 2 1 1 87 111 95 50
1 65 104 88 31 4 8 33 72 175 105 61 50 39 15 8 2 0 18 4 8 5 10 14 18 9 6 1 1 1 10 22 26 5 6 9
0 2 2 0 1 0 1 5 8 7 23 20 6 1 4 1 0 12 6 6 3 8 2 5 7 3 15 0 2 7 2 3 3
0 1 0 2 1 0 0 0 13 0 3 0 4 1 0 7 2 5 0 0 4 2 2 7 10 8 0 4 1 0 0
9 9 3 4 8 0 1 4 0 0 0 2 11 2 1 4 2 7 5 12 5 0 10
10 3 4 0 1 0 5 1 0 0 2 9 0 0 3 8 6 1 0 4 8 23 35 19 1 6 22
8 2 0 0 0 0 0 4 2 0 0 0 2 6 2 2 1 2 2 2 1 1 1 17 48 98 15 35 30
1 1 0 1 1 0 0 0 1 2 0 0 1 1 18 17 23 338 183 48 47
0 0 0 9 3 10 2
0

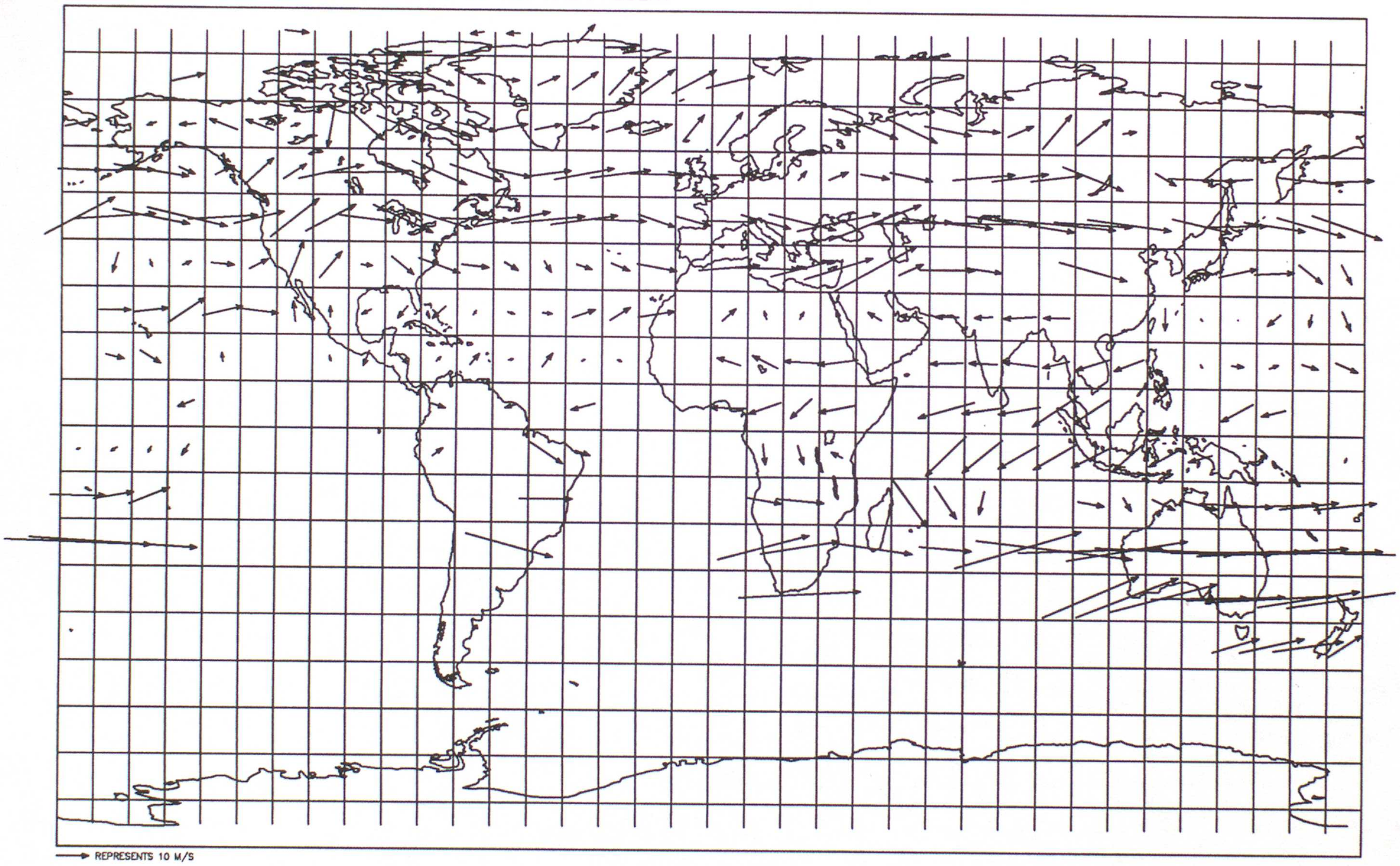
AIRCRAFT MEAN WINDS BETWEEN 70 AND 500 HPA

FIGURE 4

JULY 1997

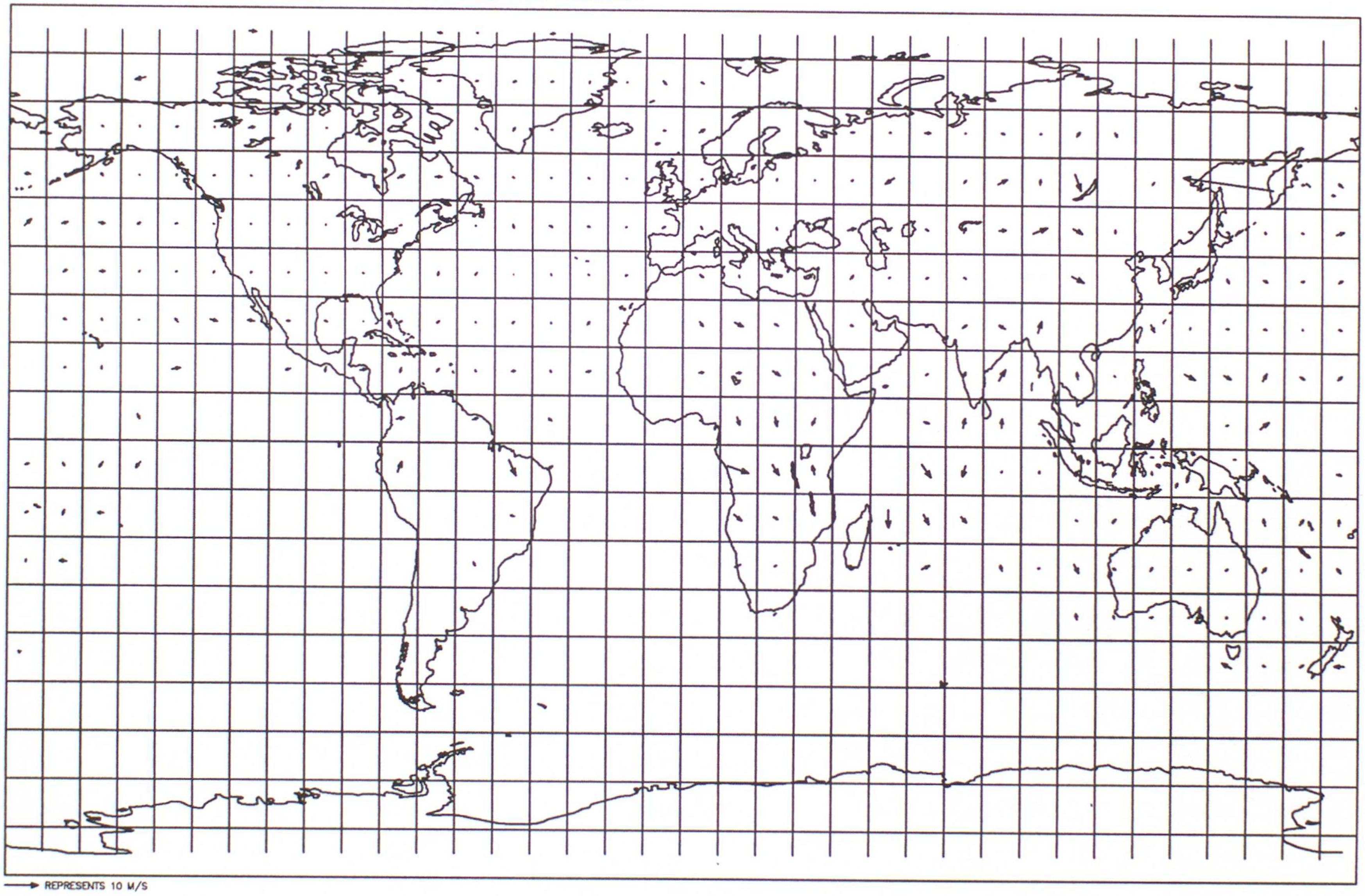
OBSERVATIONS WITH O--B VECTOR DIFFERENCE GREATER THAN 60 MPS EXCLUDED

VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT

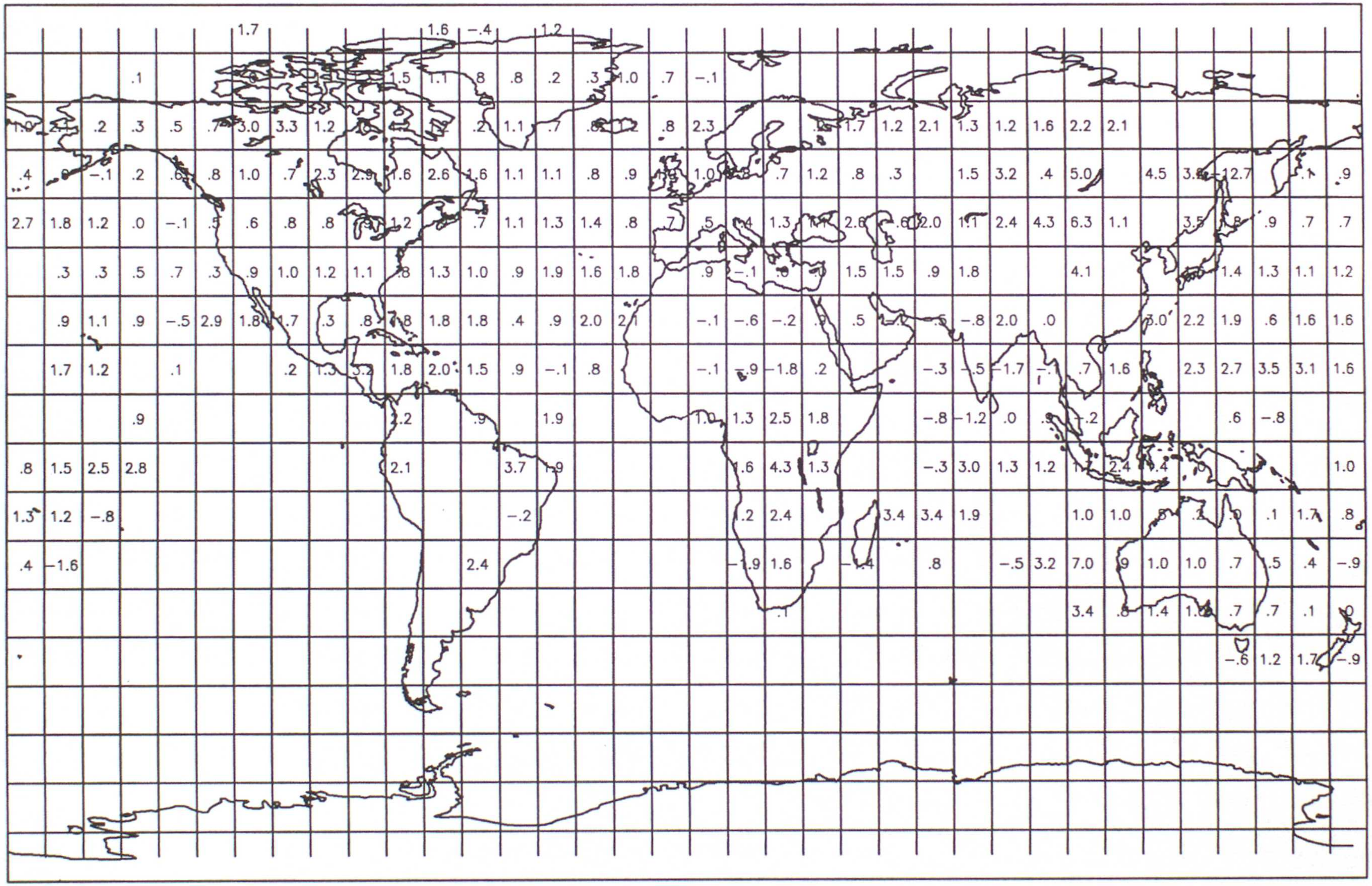


AIRCRAFT MEAN O-B WINDS BETWEEN 70 AND 500 HPA
JULY 1997
OBSERVATIONS WITH O-B VECTOR DIFFERENCE GREATER THAN 60 MPS EXCLUDED
VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT

FIGURE 5



AIRCRAFT : MEAN O–B SPEEDS (M/S) BETWEEN 70 AND 500 HPA FIGURE 6
JULY 1997
OBSERVATIONS WITH O–B VECTOR DIFFERENCE > 60 MPS EXCLUDED
VALUES ARE PRINTED WHERE > 30 OBS ARE PRESENT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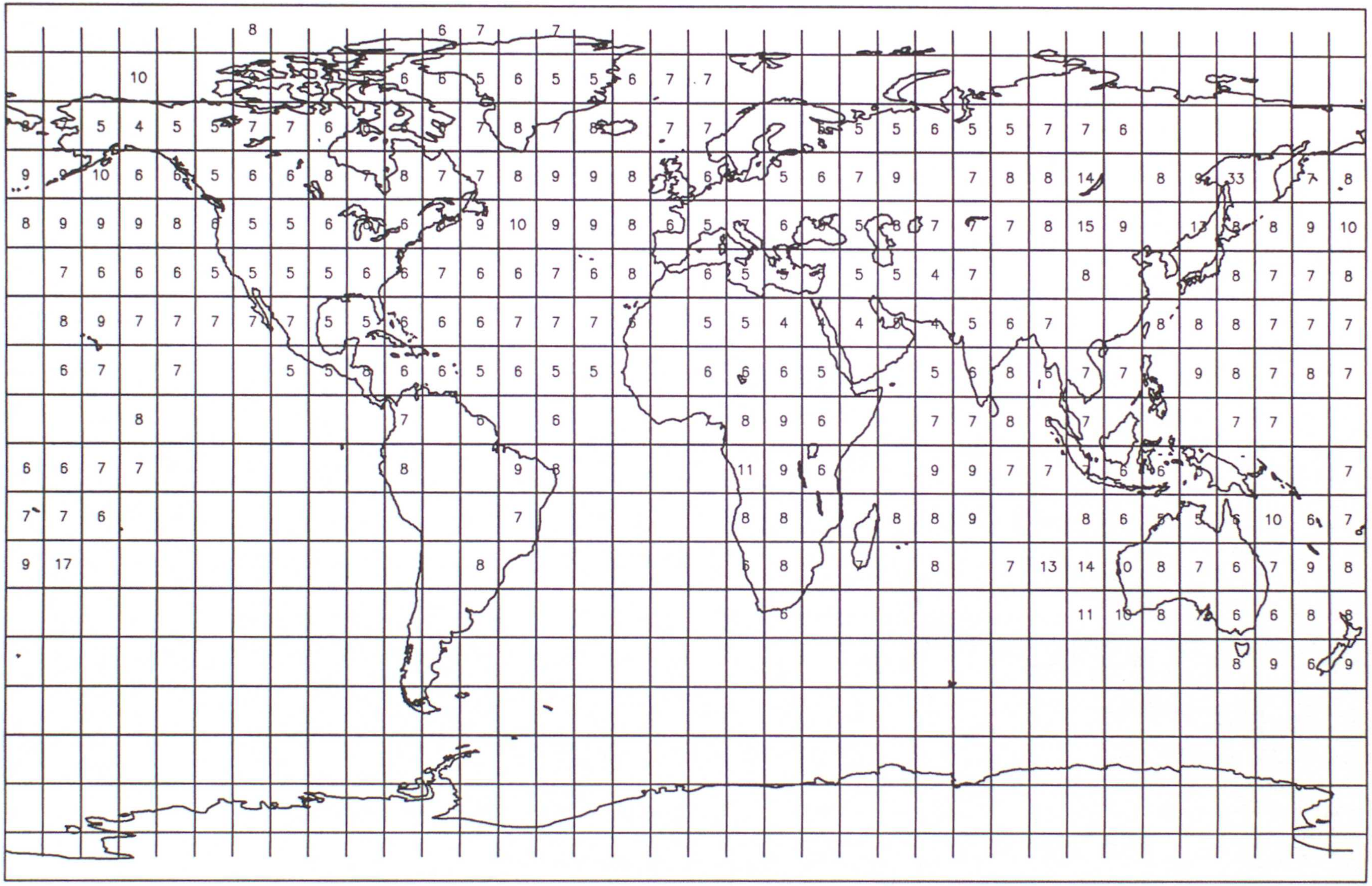
.1 1.5 1.1 .8 .8 .2 .3 1.0 .7 –.1
1.0 2.1 .2 .3 .5 .7 3.0 3.3 1.2 .2 1.1 .7 .8 2.3 1.7 1.2 2.1 1.3 1.2 1.6 2.2 2.1
.4 –.1 .2 .8 1.0 .7 2.3 2.9 1.6 2.6 1.6 1.1 1.1 .8 .9 1.0 .7 1.2 .8 .3 1.5 3.2 .4 5.0 4.5 12.7 .9
2.7 1.8 1.2 .0 –.1 .6 .8 .8 1.2 .7 1.1 1.3 1.4 .8 .7 .5 1.3 2.6 2.0 1.1 2.4 4.3 6.3 1.1 3.5 .9 .7 .7
.3 .3 .5 .7 .3 .9 1.0 1.2 1.1 .8 1.3 1.0 .9 1.9 1.6 1.8 .9 –.1 1.5 1.5 .9 1.8 4.1 1.4 1.3 1.1 1.2
.9 1.1 .9 –.5 2.9 1.8 .7 .3 .8 .8 1.8 1.8 .4 .9 2.0 2.1 –.1 –.6 –.2 .5 –.8 2.0 .0 3.0 2.2 1.9 .6 1.6 1.6
1.7 1.2 .1 .2 1.3 3.2 1.8 2.0 1.5 .9 –.1 .8 –.1 –.9 –1.8 .2 –.3 –.5 –1.7 .7 1.6 2.3 2.7 3.5 3.1 1.6
.9 2.2 .9 1.9 1.0 1.3 2.5 1.8 –.8 –1.2 .0 .2 .6 –.8
.8 1.5 2.5 2.8 2.1 3.7 1.9 1.6 4.3 1.3 –.3 3.0 1.3 1.2 2.4 1.0
1.3 1.2 –.8 –.2 .2 2.4 3.4 3.4 1.9 1.0 1.0 .1 1.7 .8
.4 –1.6 2.4 –1.9 1.6 –1.4 .8 –.5 3.2 7.0 .9 1.0 1.0 .7 .5 .4 –.9
.1 3.4 1.4 1.0 .7 .7 .1 .0
–.6 1.2 1.7 –.9

AIRCRAFT : RMS O–B VECTOR (M/S) BETWEEN 70 AND 500 HPA FIGURE 7

JULY 1997

OBSERVATIONS WITH O–B VECTOR DIFFERENCE GREATER THAN 60 MPS EXCLUDED

VALUES ARE PRINTED WHERE > 30 OBS ARE PRESENT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10 6 6 5 6 5 5 6 7 7
8 7 5 4 5 5 7 7 6 6 7 8 7 8 7 7 5 5 6 5 5 7 7 6
9 9 10 6 6 5 6 6 8 7 8 7 7 8 9 9 8 6 5 6 7 9 7 8 8 14 8 9 33 7 8
8 9 9 9 8 6 5 5 6 6 9 10 9 9 8 6 5 7 6 6 5 8 7 7 7 8 15 9 13 8 8 9 10
7 6 6 6 5 5 5 5 6 6 7 6 6 7 6 8 6 5 5 5 5 4 7 8 8 7 7 8
8 9 7 7 7 7 7 5 5 6 6 6 7 7 7 6 5 5 4 4 4 6 4 5 6 7 8 8 8 7 7 7
6 7 7 5 5 8 6 6 5 6 5 5 6 6 6 5 5 6 8 6 7 7 9 8 7 8 7
8 7 6 6 8 9 6 7 7 8 8 7 7 7
6 6 7 7 8 9 8 11 9 6 9 9 7 7 7 6 6 7
7 7 6 7 8 8 8 8 9 8 6 5 5 6 10 6 7
9 17 8 6 8 7 8 7 13 14 10 8 7 6 7 9 8
6 11 10 8 7 6 6 8 8
8 9 6 9

TABLE 5

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS
MONITORING CENTRE: BRACKNELL
MONTH: July, 1997

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from each unique identifier for radiosonde TEMPs.

Area monitored :90°N - 90°S, 180°W - 180°E.

Standard of comparison :Background field from Bracknell global model.

Observation times :00 UTC and 12 UTC.

Level(s) monitored :Standard levels between 1000.0 - 30.0 hPa

Element monitored :GEOPOTENTIAL HEIGHT IN metres

Parameters monitored

:NUM OBS :Number of observations available at level shown during period.

:NUM GROSS :Number of gross errors at level shown duringperiod.

:% REJ :Percentage of observations rejected by quality control at level shown during period.

:SD :SD of difference of observations from background values at level shown excluding those with gross errors.

:BIAS :Mean difference of observations from background values at level shown excluding those with gross errors.

:RMS :Root Mean Square difference of observations from background values at level shown excluding those with gross errors.

:NUM LEVELS :Number of levels satisfying selection criteria.

GROSS ERROR LIMITS :Defined in Appendix I.1

SELECTION CRITERIA : ≥3 levels with ≥10 observations and ≥ 100 m weighted RMS.

ONLY THE WORST LEVEL IS SHOWN WITH UNWEIGHTED RMS

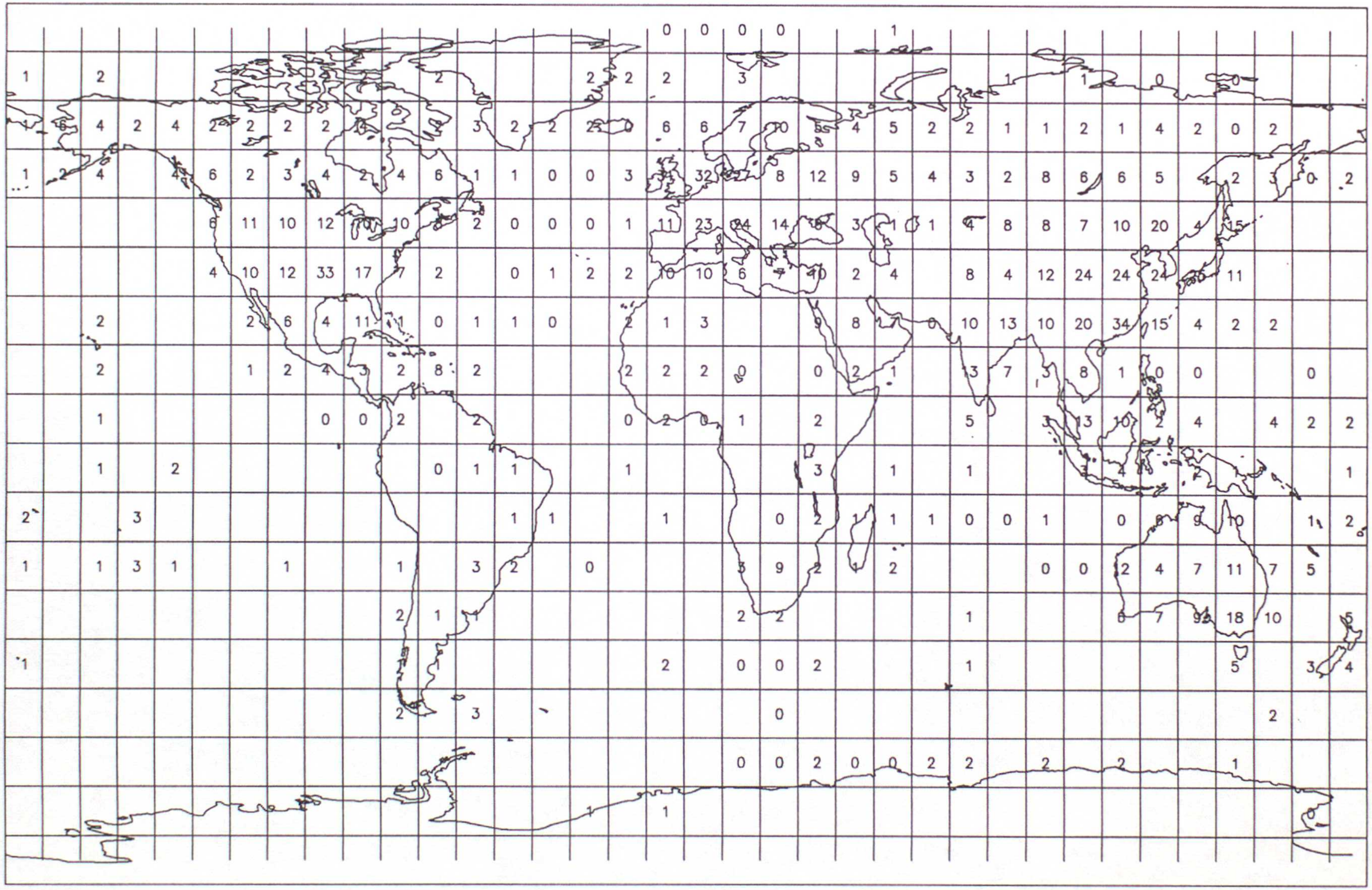
WMO IDENT	OBS TIME	ELM	LEV	LAT/LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS	NUM LEVELS
17220	12	Z	30	38/ 27	17	0	89.7	274.5	288.8	10
17280	00	Z	100	38/ 40	14	1	102.6	18.2	104.2	4
17351	00	Z	70	37/ 35	11	1	172.6	-18.4	173.6	5
37985	00	Z	70	39/ 49	7	4	109.0	166.9	199.3	6
42027	00	Z	50	34/ 75	15	0	153.8	-143.0	210.0	10
42027	12	Z	50	34/ 75	13	2	125.4	-141.9	189.4	7
42101	00	Z	30	30/ 76	15	0	142.0	168.8	220.6	8
42101	12	Z	50	30/ 76	14	0	91.5	195.4	215.7	6
42314	12	Z	100	27/ 95	12	2	119.5	-56.3	132.1	9
42339	00	Z	200	26/ 73	17	0	99.6	-30.9	104.3	6
42361	00	Z	30	26/ 78	10	0	86.5	183.9	203.2	4
42361	12	Z	70	26/ 78	10	0	138.1	70.8	155.2	6
42369	00	Z	70	27/ 81	18	3	153.0	102.8	184.3	9
42369	12	Z	70	27/ 81	11	0	144.3	158.0	213.9	8
42379	12	Z	30	27/ 83	18	1	143.2	201.4	247.1	5
42397	00	Z	30	27/ 88	10	0	140.4	144.0	201.1	7
42397	12	Z	50	27/ 88	12	0	149.8	80.1	169.8	6
42492	00	Z	200	26/ 85	25	0	86.0	-46.7	97.8	7
42492	12	Z	50	26/ 85	10	0	173.3	23.0	174.8	6
42724	00	Z	100	24/ 91	21	0	122.7	61.3	137.2	8
42724	12	Z	200	24/ 91	19	0	81.0	41.5	91.0	7
42971	00	Z	200	20/ 86	22	0	60.2	-93.5	111.2	7
42971	12	Z	200	20/ 86	24	0	59.9	-77.8	98.1	8
43003	12	Z	100	19/ 73	16	1	112.0	103.4	152.5	4
43014	12	Z	300	20/ 75	19	0	63.2	18.1	65.7	4
43041	00	Z	100	19/ 82	14	1	120.9	5.6	121.1	5
43128	00	Z	50	17/ 78	19	0	149.5	-20.3	150.8	4
43128	12	Z	100	17/ 78	21	0	134.4	52.7	144.3	7
43185	00	Z	70	16/ 81	16	0	127.3	139.2	188.7	7
43185	12	Z	70	16/ 81	15	1	86.7	121.4	149.2	8
43192	12	Z	150	15/ 74	18	0	90.8	91.6	129.0	5
43279	12	Z	70	13/ 80	16	0	89.8	91.1	127.9	4
43285	00	Z	50	13/ 75	13	0	78.6	-167.5	185.0	7
43333	12	Z	200	12/ 93	14	0	97.3	-20.4	99.4	6
43346	00	Z	50	11/ 80	22	0	117.0	-142.0	184.0	9
43369	12	Z	70	8/ 73	14	0	108.6	119.5	161.5	5
43371	00	Z	50	8/ 77	15	1	83.4	-264.5	277.4	7
43371	12	Z	50	8/ 77	21	0	147.5	-71.5	163.9	7
50527	12	Z	70	49/ 120	28	1	71.2	134.3	152.0	4
52836	00	Z	100	36/ 98	28	0	75.9	119.2	141.4	5
52836	12	Z	70	36/ 98	26	0	78.6	136.1	157.2	5
54135	00	Z	70	44/ 122	27	1	61.8	124.4	138.9	5
54161	00	Z	150	44/ 125	28	1	45.8	75.6	88.4	4
54161	12	Z	70	44/ 125	20	0	57.3	128.1	140.4	5
54497	00	Z	100	40/ 124	22	0	47.3	131.3	139.6	8
54497	12	Z	70	40/ 124	14	0	71.2	157.6	173.0	6
56294	12	Z	100	31/ 104	23	0	60.0	115.1	129.8	6
62414	00	Z	50	24/ 33	17	3	116.3	233.4	260.7	5
62414	12	Z	100	24/ 33	24	4	96.8	109.4	146.1	6
63450	12	Z	700	9/ 39	26	0	6.2	68.2	68.5	7
76394	00	Z	850	26/-100	28	0	7.8	31.1	32.1	4
85934	00	Z	250	-53/ -71	26	0	40.1	74.0	84.1	5
85934	12	Z	300	-53/ -71	30	0	35.2	80.0	87.4	5
88889	00	Z	300	-52/ -58	28	0	26.5	66.6	71.7	4
88889	12	Z	300	-52/ -58	24	0	39.7	60.6	72.4	4
89022	12	Z	850	-75/ -27	27	1	33.1	3.6	33.3	6
91557	12	Z	700	-18/ 168	12	5	8.7	-76.7	77.2	8
96237	00	Z	250	-2/ 106	10	0	21.5	-135.7	137.4	5
97560	12	Z	50	-1/ 136	15	0	78.6	-155.2	174.0	7

AVAILABILITY – TEMP – 500 HPA GEOPOTENTIAL – JULY 1997 FIGURE 8

ALL HOURS

10 DEGREE BOX AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS

GLOBAL AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS – 1361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6 4 2 4 2 2 2 2 3 2 2 2 6 6 7 10 5 4 5 2 2 1 1 2 1 4 2 0 2
1 2 4 4 6 2 3 4 2 4 6 1 1 0 0 3 3 32 8 12 9 5 4 3 2 8 6 6 5 2 3 0 2
6 11 10 12 10 10 2 0 0 0 1 11 23 24 14 6 3 1 1 4 8 8 7 10 20 4 15
4 10 12 33 17 7 2 0 1 2 2 10 10 6 7 10 2 4 8 4 12 24 24 24 30 11
2 2 6 4 11 1 0 1 1 0 2 1 3 9 8 0 10 13 10 20 34 15 4 2 2
2 1 2 4 3 2 8 2 2 2 2 0 0 2 1 13 7 3 8 1 0 0 0
1 0 0 2 2 0 2 0 1 2 5 3 13 10 2 4 4 2 2
1 2 0 1 1 1 3 1 1 3 4 2 1
2 3 1 1 1 0 2 1 1 1 0 0 1 0 8 9 10 1 2
1 1 3 1 1 1 3 2 0 3 9 2 1 2 0 0 12 4 7 11 7 5
2 1 1 2 2 1 6 7 92 18 10 5
1 2 0 0 2 1 5 3 4
2 3 0 2
0 0 2 0 0 2 2 2 2 1
1 1

TABLE 6

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS
MONITORING CENTRE: BRACKNELL
MONTH: July, 1997

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from each unique identifier for radiosonde TEMPs.

Area monitored :90°N - 90°S, 180°W - 180°E.

Standard of comparison :Background field from Bracknell global model.

Observation times :00 UTC and 12 UTC.

Level(s) monitored :Standard levels between 1000.0 - 100.0 hPa

Element monitored :VECTOR WIND in m s^{-1}

Parameters monitored

:NUM OBS :Number of observations available at level shown during period.

:NUM GROSS :Number of gross errors at level shown during period.

:% REJ :Percentage of observations rejected by quality control at level shown during period.

:UBIAS,VBIAS :Mean difference of observations of U and V components from background values at level shown excluding those with gross errors.

:RMS :Root Mean Square difference of observations from background values at level shown excluding those with gross errors.

:NUM LEVELS :Number of levels satisfying selection criteria.

GROSS ERROR LIMITS :Defined in Appendix I.2

SELECTION CRITERIA : ≥ 10 observations and ≥ 15 m s^{-1} RMS vector wind.

ONLY THE STANDARD LEVEL BETWEEN 1000 - 100 hPa WITH HIGHEST RMS IS SHOWN

WMO IDENT	OBS TIME	ELM	LEV	LAT/LONG	NUM OBS	NUM GROSS	% REJ	UBIAS	VBIAS	RMS	LEVELS
43369	00	V	300	8/ 73	14	0	14	-4.0	4.3	15.6	1
83612	12	V	250	-20/ -55	29	0	17	1.8	0.9	16.1	1

AVAILABILITY – TEMP/PILOT – 300 HPA WIND – JULY 1997

FIGURE 9

ALL HOURS

10 DEGREE BOX AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS

GLOBAL AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS – 1216

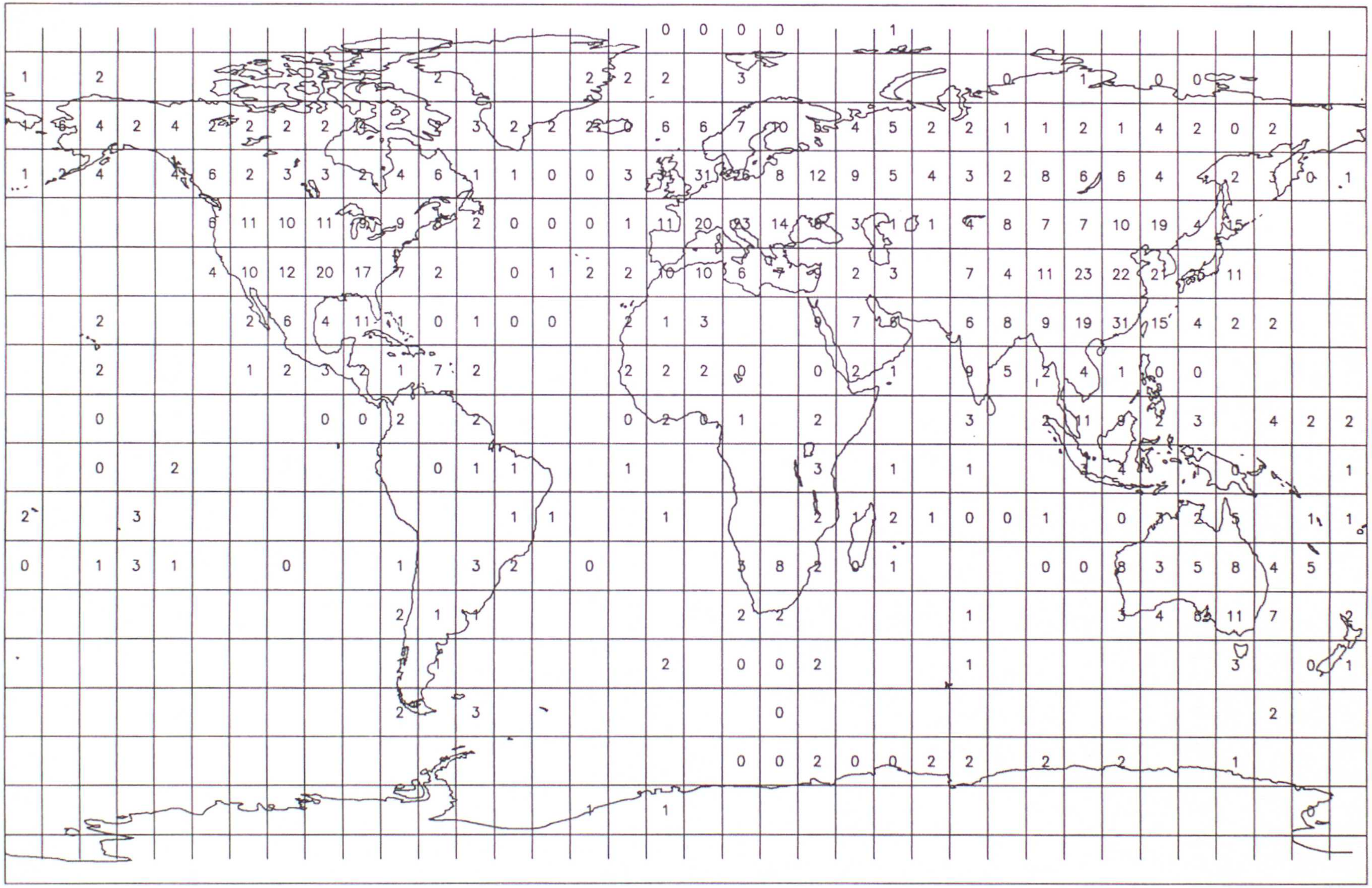

0 0 0 0 1
1 2 2 2 2 2 3 0 1 0 0
1 6 4 2 4 2 2 2 2 3 2 2 2 6 6 7 0 5 4 5 2 2 1 1 2 1 4 2 0 2
1 2 4 4 6 2 3 3 2 4 6 1 1 0 0 3 3 31 26 8 12 9 5 4 3 2 8 6 6 4 4 2 3 0 1
6 11 10 11 9 9 2 0 0 0 1 11 20 23 14 18 3 1 1 4 8 7 7 10 19 4 15
4 10 12 20 17 7 2 0 1 2 2 10 10 6 7 9 2 3 7 4 11 23 22 21 11
2 2 6 4 11 1 0 1 0 0 2 1 3 9 7 8 6 8 9 19 31 15 4 2 2
2 1 2 3 2 1 7 2 2 2 2 0 0 2 1 9 5 2 4 1 0 0
0 0 0 2 2 0 2 0 1 2 3 2 11 9 2 3 4 2 2
0 2 0 1 1 1 3 1 1 3 4 0 1
2 3 1 1 1 2 1 2 1 0 0 1 0 3 2 5 1 1
0 1 3 1 0 1 3 2 0 3 8 2 0 1 0 0 8 3 5 8 4 5
2 1 1 2 2 1 3 4 32 11 7 2
1 2 0 0 2 1 3 0 1
2 3 0 2
0 0 2 0 0 2 2 2 2 1
1 1 0

TABLE 7

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS
MONITORING CENTRE: BRACKNELL
MONTH: July, 1997

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from each unique identifier for radiosonde TEMPs.

Area monitored :90°N - 90°S, 180°W - 180°E.

Standard of comparison :Background field from Bracknell global model.

Observation times :00 UTC and 12 UTC.

Level(s) monitored :Standard levels between 500.0 - 150.0 hPa

Element monitored :WIND DIRECTION in degrees

Parameters monitored

:NUM OBS :Average number of observations at all levels.

:BIAS :Mean difference of observations from background values from all levels.

:MAX SPREAD :(For observation - background values) Maximum absolute difference of SD at any level from SD at all levels

:SD :SD of difference of observations from background values at all levels.

SELECTION CRITERIA :NUM OBS ≥ 5, and
ABSOLUTE BIAS ≥ 10°, with
SD < 30°, and
MAX SPREAD < 10°

WMO IDENT	OBS TIME	ELM	LAT/LONG	NUM OBS	BIAS	MAX SPREAD	SD
17280	00	DD	38/ 40	25	-14.2	8.2	14.9
25400	00	DD	66/ 151	19	-11.5	3.8	21.5
40437	00	DD	25/ 47	16	13.2	7.8	21.3
42339	00	DD	26/ 73	10	16.8	9.3	22.7
42369	00	DD	27/ 81	10	16.7	9.2	27.1
42397	12	DD	27/ 88	7	10.6	6.7	20.8
48407	00	DD	15/ 105	15	-18.5	7.1	22.2
54337	12	DD	41/ 121	21	-11.3	6.3	20.0
59134	00	DD	24/ 118	15	12.5	6.3	22.0
59134	12	DD	24/ 118	16	12.2	5.7	23.1
61291	00	DD	13/ -8	17	-10.2	5.9	27.6
62337	00	DD	31/ 34	17	-22.1	7.0	14.0
62337	12	DD	31/ 34	8	-25.3	6.8	11.5
96749	00	DD	-6/ 107	20	11.9	9.3	26.0

MONITORING OF SATELLITE WINDS

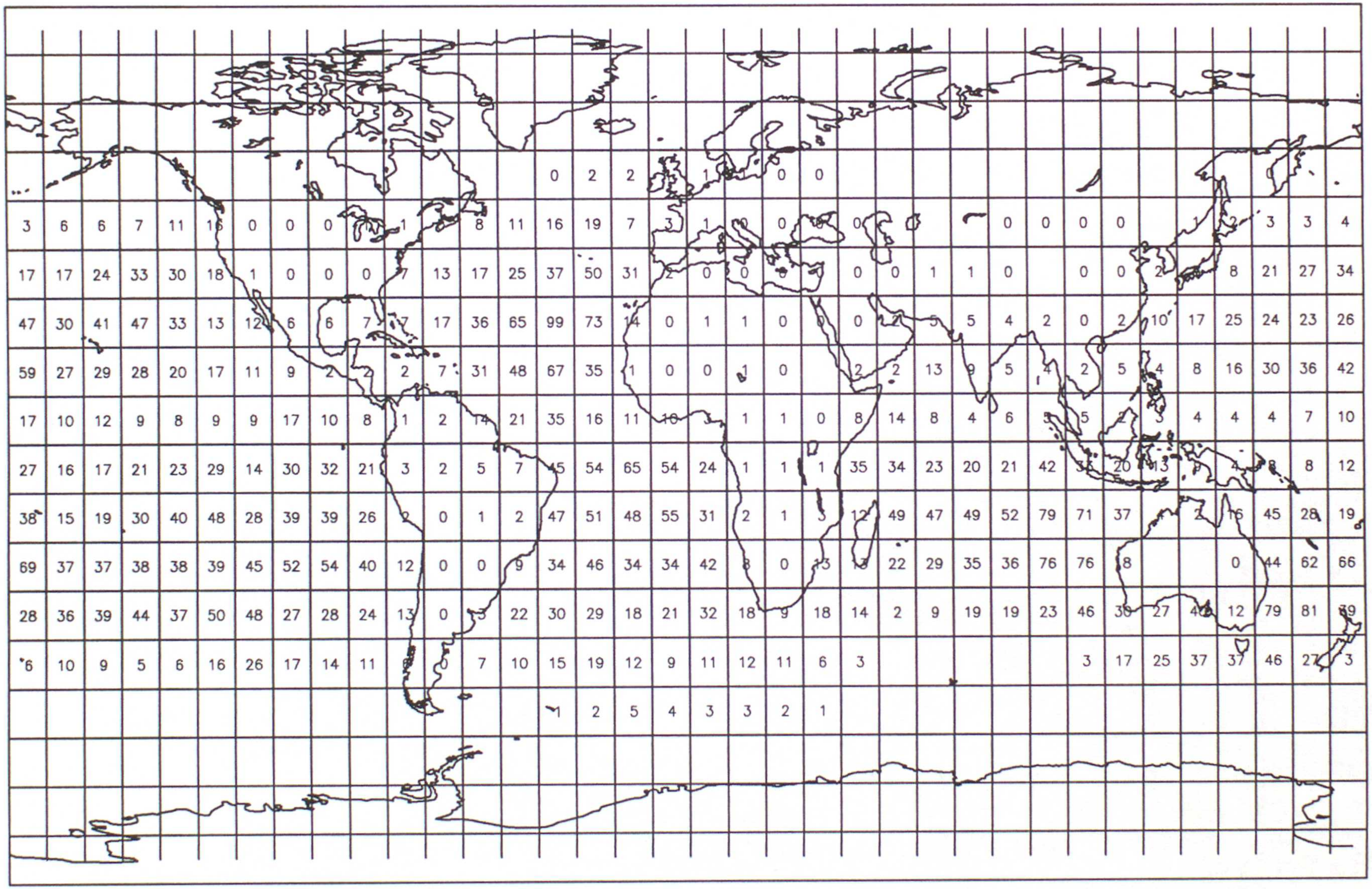
MONITORING CENTRE: BRACKNELL

MONTH: July, 1997

Monitoring procedures

Period	:One calendar month.
Data monitored	:Reports from GOES, METEOSAT, GMS, INSAT.
Standard of comparison	:Background field from Bracknell global model.
Selection Criteria	:number of observations > 10.
Data Extracted	:Layer 701 - 1000 hPa 401 - 700 hPa 101 - 400 hPa :Mean wind :Mean observation minus background vector wind differences :Mean observation minus background speed differences :RMS of observation minus background vector differences

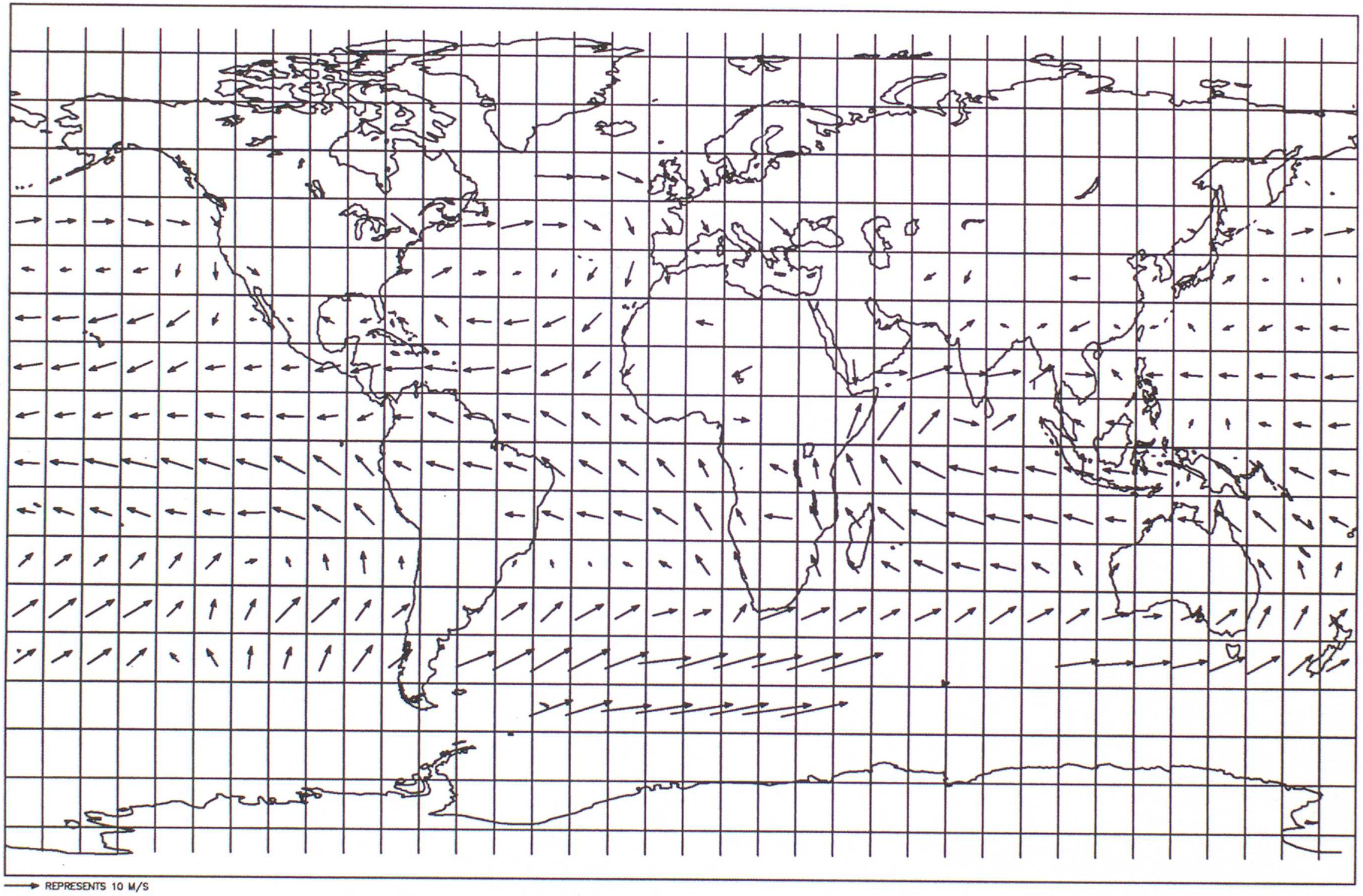
AVERAGE DAILY NUMBER OF SATOB OBSERVATIONS BETWEEN 701 AND 1000 HPA FIGURE 10
JULY 1997



														0	2	2		1		0	0														
3	6	6	7	11	16	0	0	0		1		8	11	16	19	7	3	1	0	0	0	0				0	0	0	0		1	2	3	3	4
17	17	24	33	30	18	1	0	0	0	7	13	17	25	37	50	31	2	0	0	0	0	0	0	1	1	0		0	0	2		8	21	27	34
47	30	41	47	33	13	12	6	6	7	7	17	36	65	99	73	14	0	1	1	0	0	0	2	5	5	4	2	0	2	10	17	25	24	23	26
59	27	29	28	20	17	11	9	2	2	2	7	31	48	67	35	1	0	0	1	0		2	2	13	9	5	4	2	5	4	8	16	30	36	42
17	10	12	9	8	9	9	17	10	8	1	2	14	21	35	16	11	10	3	1	1	0	8	14	8	4	6	3	5	2	3	4	4	4	7	10
27	16	17	21	23	29	14	30	32	21	3	2	5	7	45	54	65	54	24	1	1	1	35	34	23	20	21	42	35	20	13	9	4	8	8	12
38	15	19	30	40	48	28	39	39	26	2	0	1	2	47	51	48	55	31	2	1	3	12	49	47	49	52	79	71	37	4	2	16	45	28	19
69	37	37	38	38	39	45	52	54	40	12	0	0	9	34	46	34	34	42	8	0	13	13	22	29	35	36	76	76	8			0	44	62	66
28	36	39	44	37	50	48	27	28	24	13	0	3	22	30	29	18	21	32	18	9	18	14	2	9	19	19	23	46	30	27	40	12	79	81	39
6	10	9	5	6	16	26	17	14	11	[illegible]	0	7	10	15	19	12	9	11	12	11	6	3						3	17	25	37	37	46	27	3
														1	2	5	4	3	3	2	1														

SATOB VECTOR MEAN WINDS BETWEEN 701–1000 HPA
JULY 1997
ALL OBSERVATIONS
ARROWS PLOTTED WHERE MORE THAN 10 OBS ARE PRESENT

FIGURE 11


REPRESENTS 10 M/S

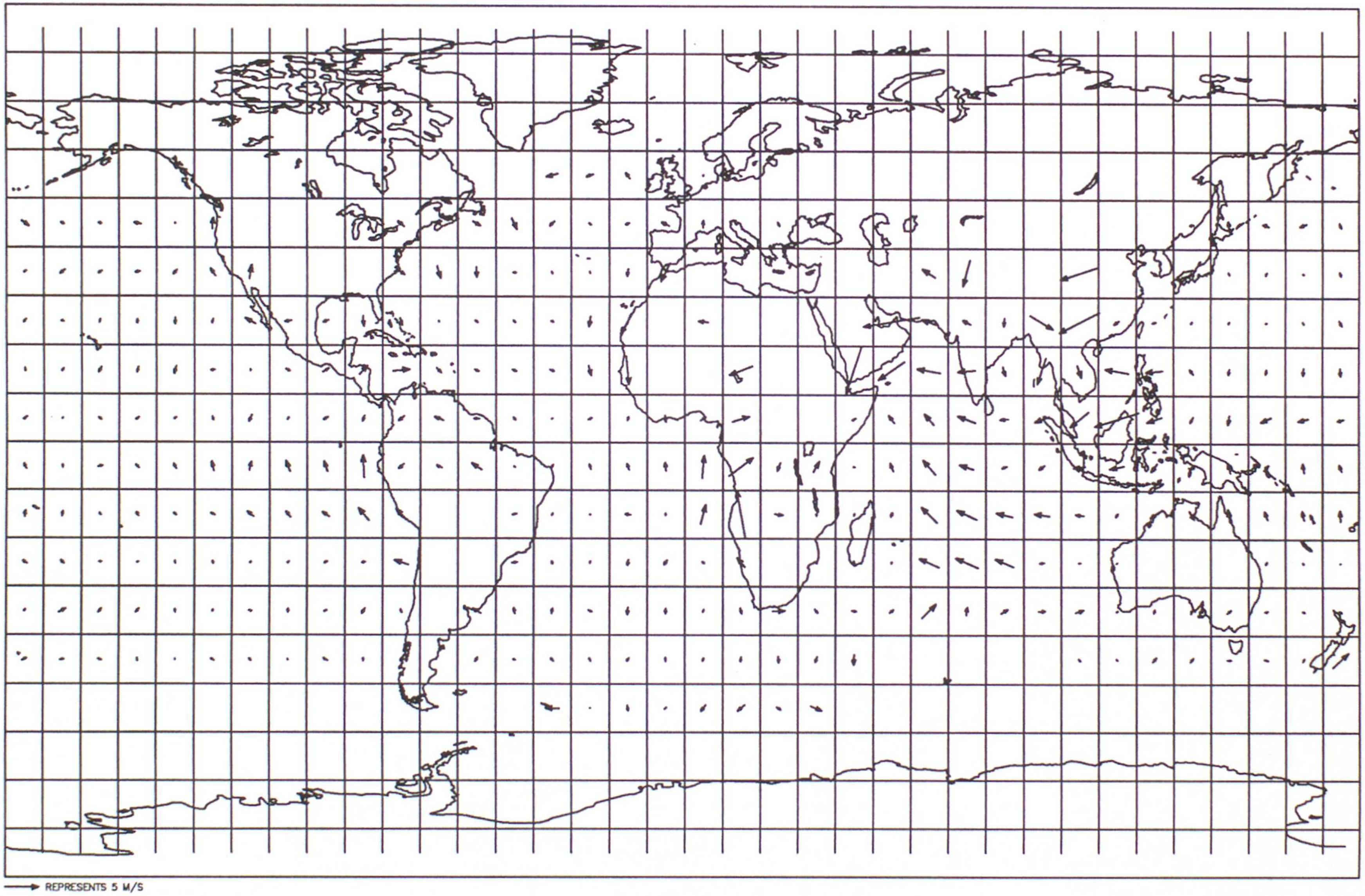
SATOB O–B VECTOR WIND DIFFERENCES BETWEEN 701–1000 HPA

FIGURE 12

JULY 1997

ALL OBSERVATIONS

ARROWS PLOTTED WHERE MORE THAN 10 OBS ARE PRESENT

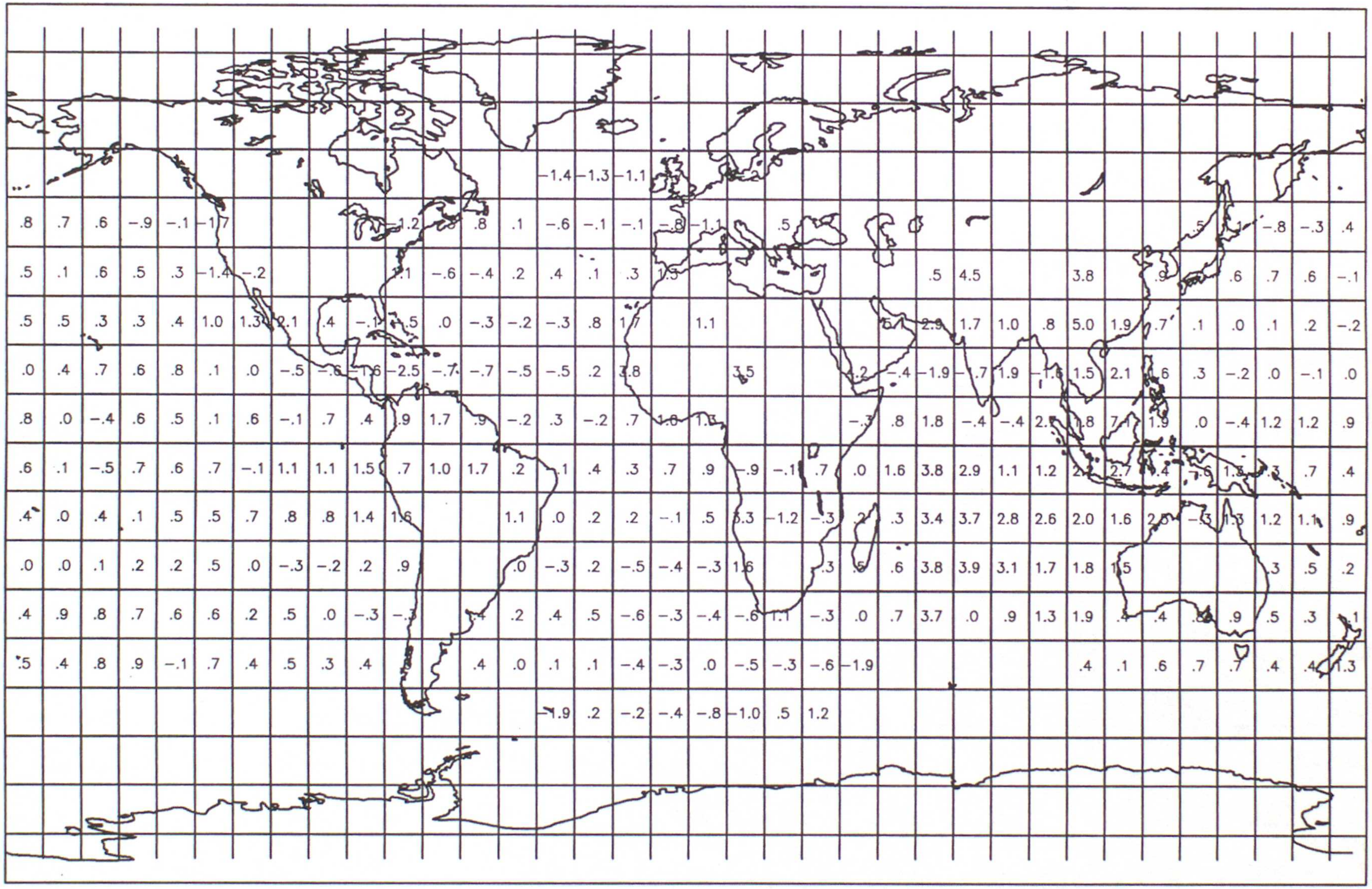

→ REPRESENTS 5 M/S

SATOBS : MEAN O–B SPEED DIFFERENCES (M/S) BETWEEN 701 AND 1000 HPA FIGURE 13

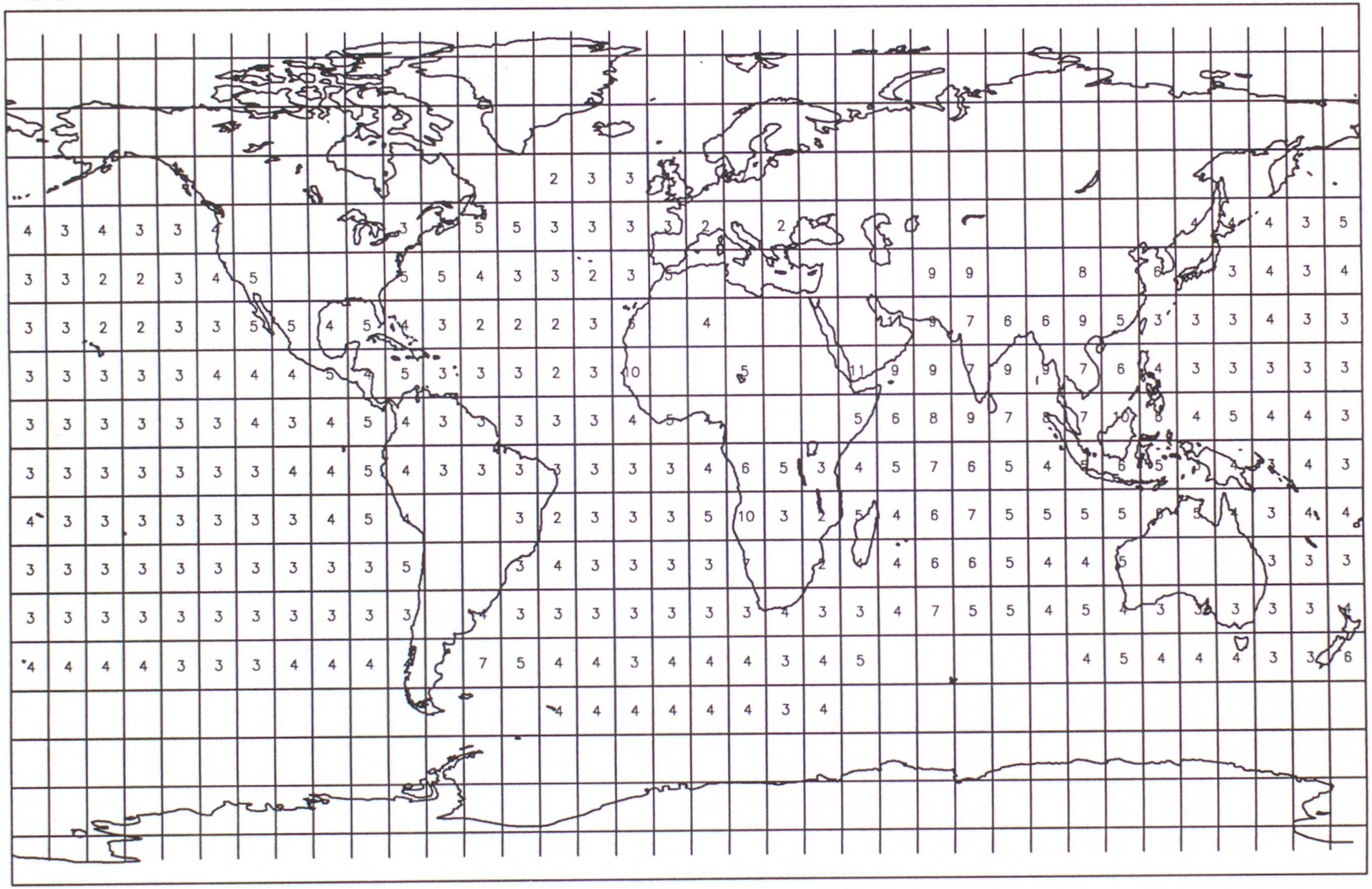
JULY 1997

USING ALL OBSERVATIONS

VALUES ARE PRINTED WHERE MORE THAN 10 OBS ARE PRESENT


-1.4 -1.3 -1.1
.8 .7 .6 -.9 -.1 -1.7 -1.2 .3 .8 .1 -.6 -.1 -.1 -.8 -1.1 .5 .5 .1 -.8 -.3 .4
.5 .1 .6 .5 .3 -1.4 -.2 1.1 -.6 -.4 .2 .4 .1 .3 1.5 .5 4.5 3.8 .9 .6 .7 .6 -.1
.5 .5 .3 .3 .4 1.0 1.3 2.1 .4 -.1 .5 .0 -.3 -.2 -.3 .8 1.7 1.1 5.1 2.9 1.7 1.0 .8 5.0 1.9 .7 .1 .0 .1 .2 -.2
.0 .4 .7 .6 .8 .1 .0 -.5 -.6 -1.6 -2.5 -.7 -.7 -.5 -.5 .2 3.8 3.5 .2 -.4 -1.9 -.7 1.9 -1.6 1.5 2.1 .6 .3 -.2 .0 -.1 .0
.8 .0 -.4 .6 .5 .1 .6 -.1 .7 .4 .9 1.7 .9 -.2 .3 -.2 .7 1.6 1.3 -.3 .8 1.8 -.4 -.4 2.5 1.8 7.1 1.9 .0 -.4 1.2 1.2 .9
.6 .1 -.5 .7 .6 .7 -.1 1.1 1.1 1.5 .7 1.0 1.7 .2 .1 .4 .3 .7 .9 -.9 -.1 .7 .0 1.6 3.8 2.9 1.1 1.2 2.2 2.7 .4 -.6 1.3 .3 .7 .4
.4 .0 .4 .1 .5 .5 .7 .8 .8 1.4 1.6 1.1 .0 .2 .2 -.1 .5 .3 -1.2 -.3 .2 .3 3.4 3.7 2.8 2.6 2.0 1.6 2.6 -.3 1.3 1.2 1.1 .9
.0 .0 .1 .2 .2 .5 .0 -.3 -.2 .2 .9 .0 -.3 .2 -.5 -.4 -.3 1.6 .3 .5 .6 3.8 3.9 3.1 1.7 1.8 1.5 .3 .5 .2
.4 .9 .8 .7 .6 .6 .2 .5 .0 -.3 -.3 .4 .2 .4 .5 -.6 -.3 -.4 -.6 1.1 -.3 .0 .7 3.7 .0 .9 1.3 1.9 .4 .4 .6 .9 .5 .3 .1
.5 .4 .8 .9 -.1 .7 .4 .5 .3 .4 .4 .0 .1 .1 -.4 -.3 .0 -.5 -.3 -.6 -1.9 .4 .1 .6 .7 .7 .4 .4 1.3
-1.9 .2 -.2 -.4 -.8 -1.0 .5 1.2

SATOBS : RMS O−B VECTOR DIFFERENCES (M/S) BETWEEN 701 AND 1000 HPA FIGURE 14
JULY 1997
USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 10 OBS ARE PRESENT


2 3 3
4 3 4 3 3 4 3 5 5 3 3 3 3 2 2 4 4 4 3 5
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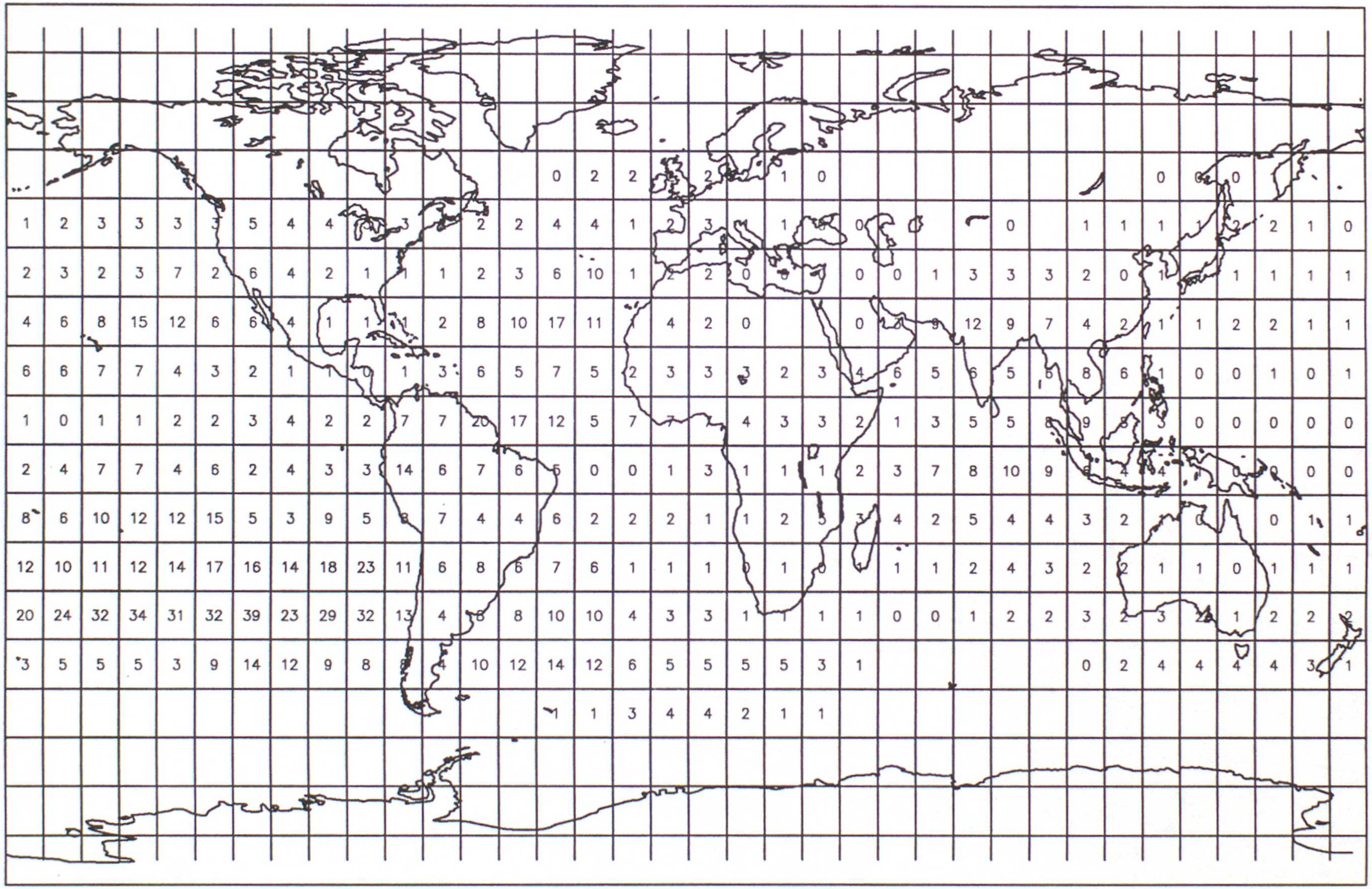
3 3 2 2 3 3 5 5 4 5 4 3 2 2 2 3 6 4 1 9 7 6 6 9 5 3 3 3 4 3 3
3 3 3 3 3 4 4 4 5 4 5 3 3 3 2 3 10 5 11 9 9 7 9 9 7 6 4 3 3 3 3 3
3 3 3 3 3 3 4 3 4 5 4 3 3 3 3 3 4 5 5 6 8 9 7 8 7 10 6 4 5 4 4 3
3 3 3 3 3 3 3 4 4 5 4 3 3 3 3 3 3 3 4 6 5 3 4 5 7 6 5 4 5 6 5 4 3 4 3
4 3 3 3 3 3 3 3 4 5 4 3 2 3 3 3 5 10 3 2 5 4 6 7 5 5 5 5 6 5 4 3 4 4
3 3 3 3 3 3 3 3 3 3 5 3 4 3 3 3 3 7 2 4 4 6 6 5 4 4 5 3 3 3
3 3 3 3 3 3 3 3 3 3 3 4 3 3 3 3 3 3 3 4 3 3 4 7 5 5 4 5 4 3 3 3 3 3 4
4 4 4 4 3 3 3 4 4 4 4 7 5 4 4 3 4 4 4 3 4 5 4 5 4 4 4 3 3 6
4 4 4 4 4 4 3 4

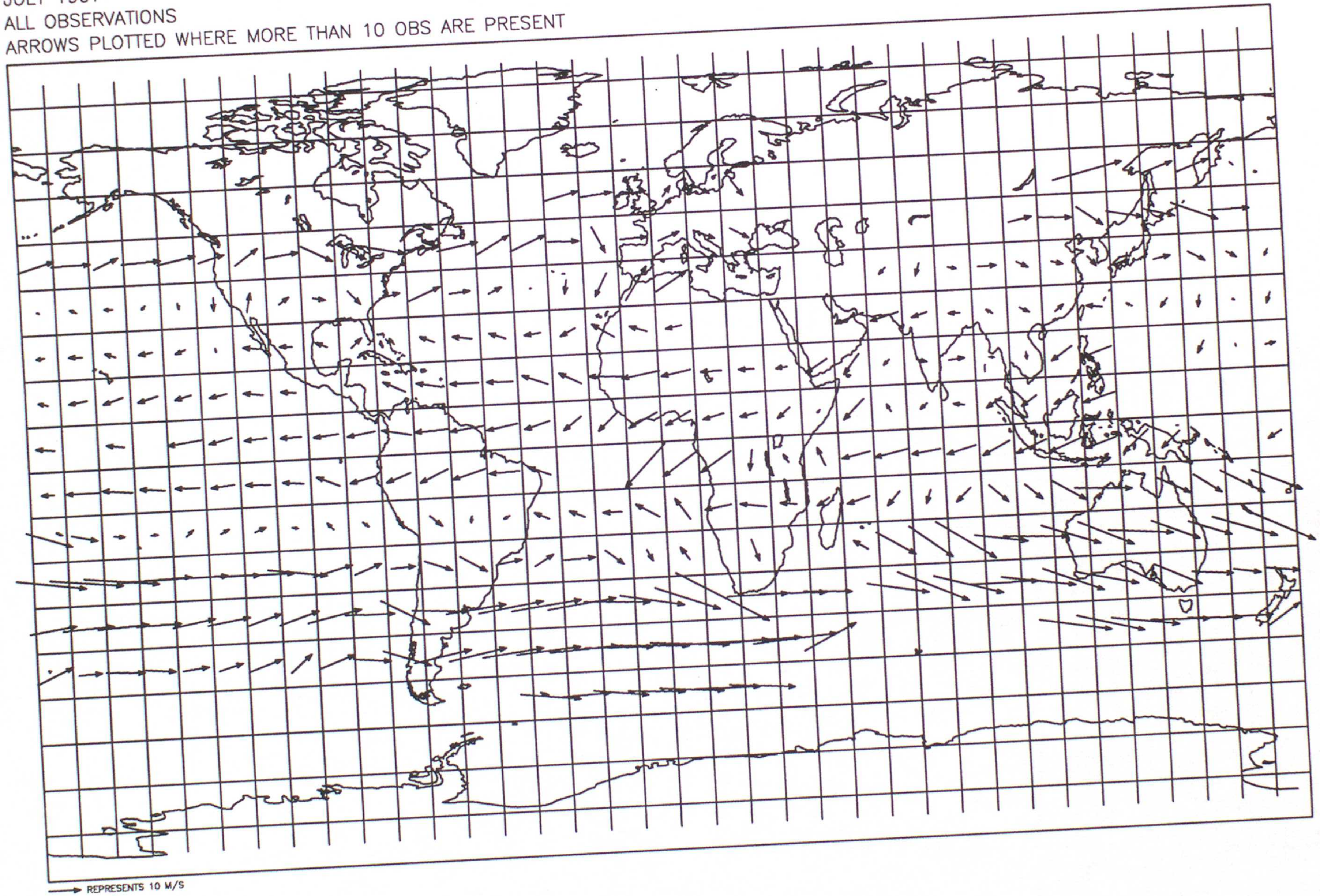
AVERAGE DAILY NUMBER OF SATOB OBSERVATIONS BETWEEN 401 AND 700 HPA FIGURE 15
JULY 1997



														0	2	2		2		1	0									0	0	0			
1	2	3	3	3	3	5	4	4	[illegible]	3		2	2	4	4	1	2	3	1	1	0	0				0		1	1	1	1	2	2	1	0
2	3	2	3	7	2	6	4	2	1	1	1	2	3	6	10	1	2	2	0	0	0	0	0	1	3	3	3	2	0	1		1	1	1	1
4	6	8	15	12	6	6	4	1	1	1	2	8	10	17	11	1	4	2	0			0	3	9	12	9	7	4	2	1	1	2	2	1	1
6	6	7	7	4	3	2	1	1	0	1	3	6	5	7	5	2	3	3	3	2	3	4	6	5	6	5	6	8	6	1	0	0	1	0	1
1	0	1	1	2	2	3	4	2	2	7	7	20	17	12	5	7	7	7	4	3	3	2	1	3	5	5	8	9	8	3	0	0	0	0	0
2	4	7	7	4	6	2	4	3	3	14	6	7	6	5	0	0	1	3	1	1	1	2	3	7	8	10	9	6	4	4	1	0	0	0	0
8	6	10	12	12	15	5	3	9	5	8	7	4	4	6	2	2	2	1	1	2	3	3	4	2	5	4	4	3	2	1	0		0	1	1
12	10	11	12	14	17	16	14	18	23	11	6	8	6	7	6	1	1	1	0	1	0	1	1	1	2	4	3	2	2	1	1	0	1	1	1
20	24	32	34	31	32	39	23	29	32	13	4	8	8	10	10	4	3	3	1	1	1	1	0	0	1	2	2	3	2	3	2	1	2	2	2
3	5	5	5	3	9	14	12	9	8	8	4	10	12	14	12	6	5	5	5	5	3	1						0	2	4	4	4	4	3	1
														1	1	3	4	4	2	1	1														

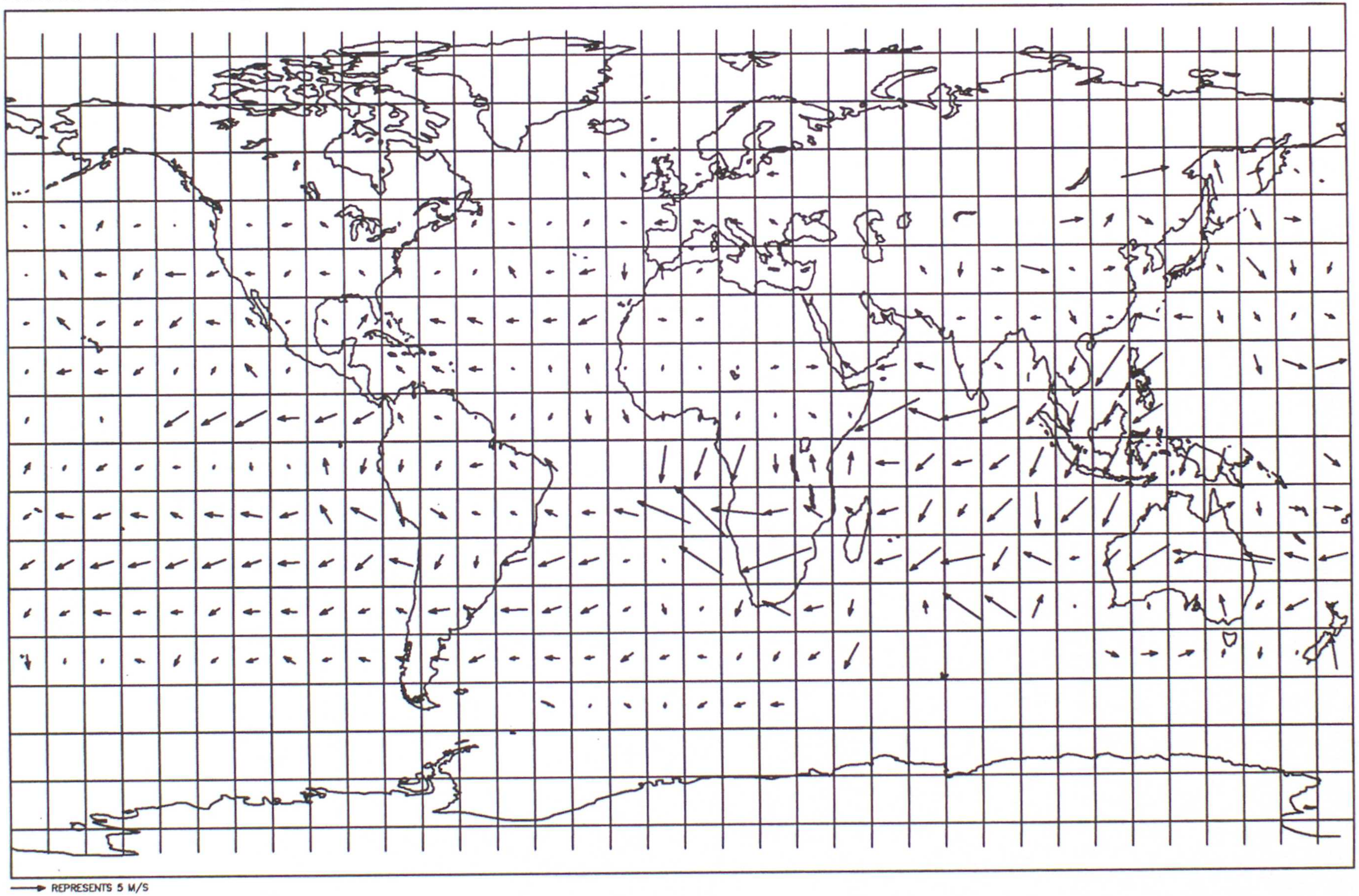
FIGURE 16

SATOB VECTOR MEAN WINDS BETWEEN 401–700 HPA
JULY 1997
ALL OBSERVATIONS
ARROWS PLOTTED WHERE MORE THAN 10 OBS ARE PRESENT


REPRESENTS 10 M/S

SATOB O–B VECTOR WIND DIFFERENCES BETWEEN 401–700 HPA
JULY 1997
ALL OBSERVATIONS
ARROWS PLOTTED WHERE MORE THAN 10 OBS ARE PRESENT

FIGURE 17

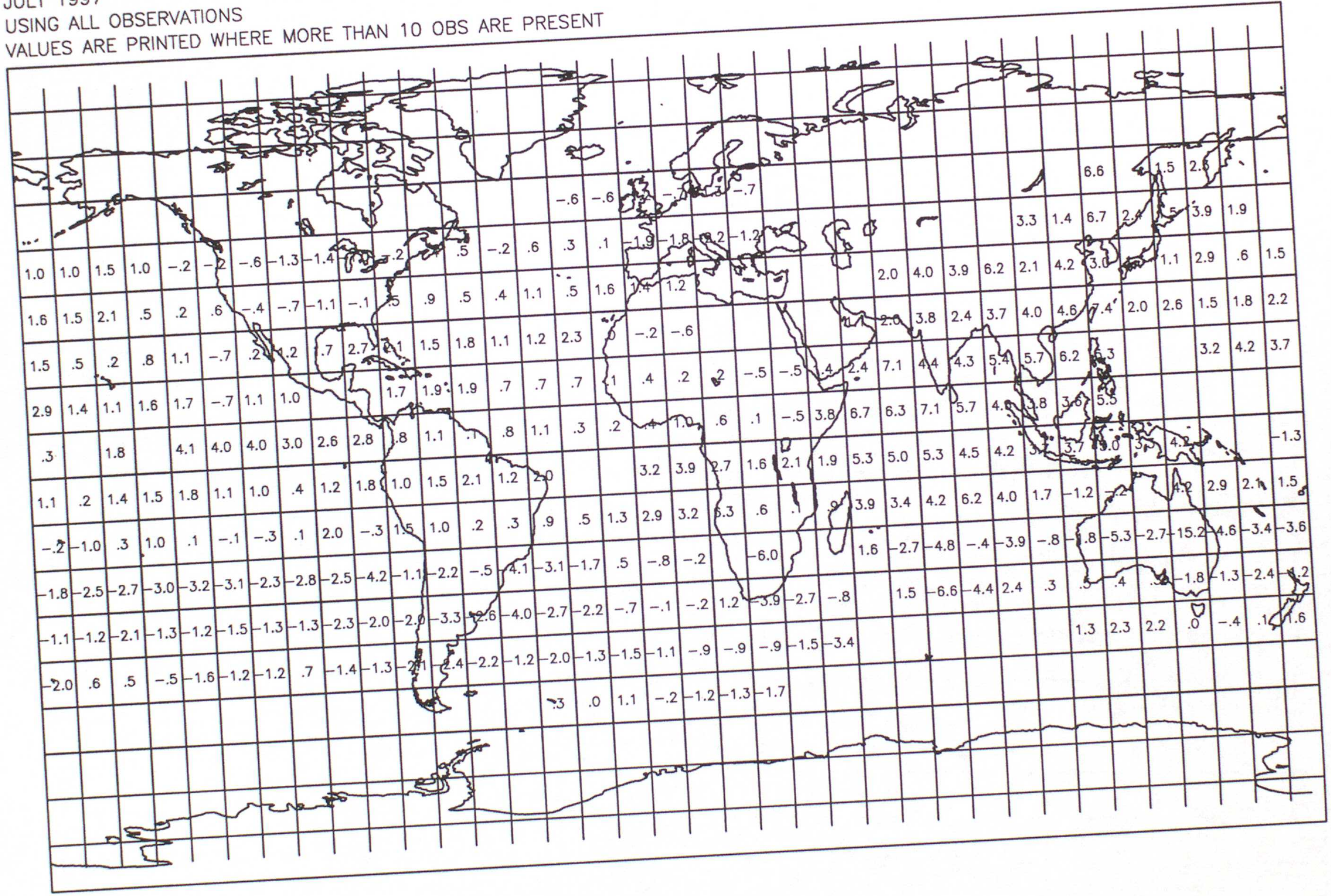

REPRESENTS 5 M/S

SATOBS : MEAN O–B SPEED DIFFERENCES (M/S) BETWEEN 401 AND 700 HPA FIGURE 18

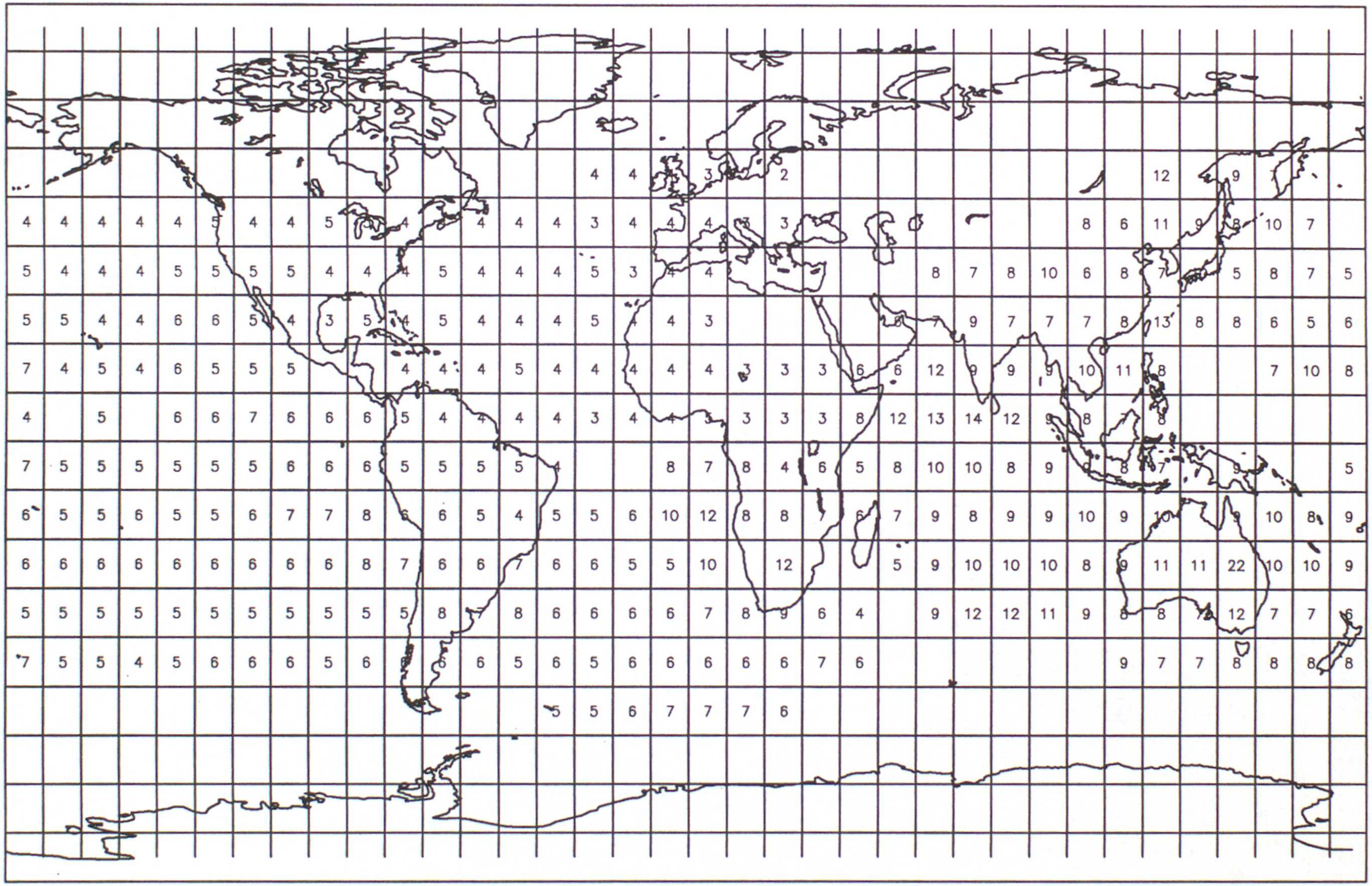
JULY 1997

USING ALL OBSERVATIONS

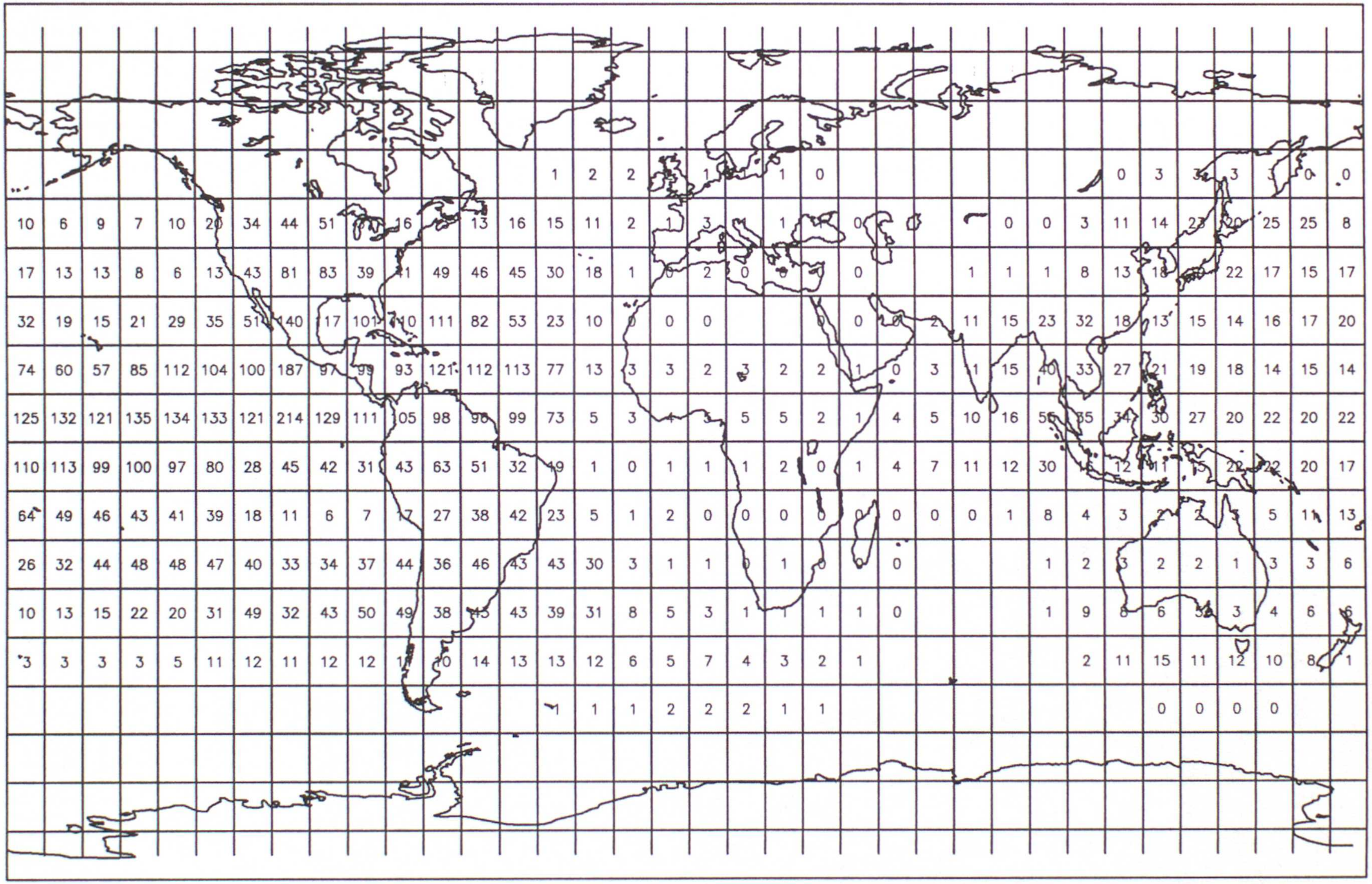
VALUES ARE PRINTED WHERE MORE THAN 10 OBS ARE PRESENT


6.6 1.5 2.6
–.6 –.6 –.7 .3 –.7 3.3 1.4 6.7 2.4 .5 3.9 1.9
1.0 1.0 1.5 1.0 –.2 –.2 –.6 –1.3 –1.4 –.2 .5 –.2 .6 .3 .1 –1.9 –1.8 –.2 –1.2 2.0 4.0 3.9 6.2 2.1 4.2 3.0 1.1 2.9 .6 1.5
1.6 1.5 2.1 .5 .2 .6 –.4 –.7 –1.1 –.1 .5 .9 .5 .4 1.1 .5 1.6 1.4 1.2 2.0 3.8 2.4 3.7 4.0 4.6 7.4 2.0 2.6 1.5 1.8 2.2
1.5 .5 .2 .8 1.1 –.7 .2 1.2 .7 2.7 .1 1.5 1.8 1.1 1.2 2.3 .0 –.2 –.6 7.1 4.4 4.3 5.4 5.7 6.2 5.3 3.2 4.2 3.7
2.9 1.4 1.1 1.6 1.7 –.7 1.1 1.0 1.7 1.9 1.9 .7 .7 .7 .1 .4 .2 .2 –.5 –.5 .4 2.4 6.7 6.3 7.1 5.7 4.6 3.8 3.6 5.5
.3 1.8 4.1 4.0 4.0 3.0 2.6 2.8 .8 1.1 .1 .8 1.1 .3 .2 .4 1.0 .6 .1 –.5 3.8 5.3 5.0 5.3 4.5 4.2 3.7 3.7 3.0 3.5 4.2 –1.3
1.1 .2 1.4 1.5 1.8 1.1 1.0 .4 1.2 1.8 1.0 1.5 2.1 1.2 2.0 3.2 3.9 2.7 1.6 2.1 1.9 3.9 3.4 4.2 6.2 4.0 1.7 –1.2 –.2 4.2 2.9 2.1 1.5
–.2 –1.0 .3 1.0 .1 –.1 –.3 .1 2.0 –.3 1.5 1.0 .2 .3 .9 .5 1.3 2.9 3.2 5.3 .6 .1 .9 1.6 –2.7 –4.8 –.4 –3.9 –.8 –1.8 –5.3 –2.7 –15.2 –4.6 –3.4 –3.6
–1.8 –2.5 –2.7 –3.0 –3.2 –3.1 –2.3 –2.8 –2.5 –4.2 –1.1 –2.2 –.5 –4.1 –3.1 –1.7 .5 –.8 –.2 –6.0 1.5 –6.6 –4.4 2.4 .3 .5 .4 .3 –1.8 –1.3 –2.4 –1.2
–1.1 –1.2 –2.1 –1.3 –1.2 –1.5 –1.3 –1.3 –2.3 –2.0 –2.0 –3.3 –2.6 –4.0 –2.7 –2.2 –.7 –.1 –.2 1.2 –3.9 –2.7 –.8 1.3 2.3 2.2 .0 –.4 .1 1.6
–2.0 .6 .5 –.5 –1.6 –1.2 –1.2 .7 –1.4 –1.3 –2.1 –2.4 –2.2 –1.2 –2.0 –1.3 –1.5 –1.1 –.9 –.9 –.9 –1.5 –3.4
.3 .0 1.1 –.2 –1.2 –1.3 –1.7

SATOBS : RMS O–B VECTOR DIFFERENCES (M/S) BETWEEN 401 AND 700 HPA FIGURE 19
JULY 1997
USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 10 OBS ARE PRESENT


4 4 3 2 12 9 7
4 4 4 4 4 5 4 4 5 5 4 4 4 4 4 3 4 4 4 3 3 8 6 11 9 8 10 7
5 4 4 4 5 5 5 5 4 4 4 5 4 4 4 5 3 4 4 8 7 8 10 6 8 7 5 8 7 5
5 5 4 4 6 6 5 4 3 5 4 5 4 4 4 5 4 4 3 6 7 9 7 7 7 8 13 8 8 6 5 6
7 4 5 4 6 5 5 5 4 4 4 5 4 4 4 4 4 3 3 3 6 6 12 9 9 9 10 11 8 7 10 8
4 5 6 6 7 6 6 6 5 4 4 4 4 3 4 4 3 3 3 3 8 12 13 14 12 9 8 7 8
7 5 5 5 5 5 5 6 6 6 5 5 5 5 4 8 7 8 4 6 5 8 10 10 8 9 9 8 7 9 5
6 5 5 6 5 5 6 7 7 8 6 6 5 4 5 5 6 10 12 8 8 7 6 7 9 8 9 9 10 9 10 9 10 8 9
6 6 6 6 6 6 6 6 6 8 7 6 6 7 6 6 5 5 10 12 5 9 10 10 10 8 9 11 11 22 10 10 9
5 5 5 5 5 5 5 5 5 5 5 8 7 8 6 6 6 6 7 8 9 6 4 9 12 12 11 9 8 8 7 12 7 7 6
7 5 5 4 5 6 6 6 5 6 6 6 6 5 6 5 6 6 6 6 6 7 6 9 7 7 8 8 8 8
5 5 6 7 7 7 6

AVERAGE DAILY NUMBER OF SATOB OBSERVATIONS BETWEEN 101 AND 400 HPA FIGURE 20
JULY 1997



														1	2	2		1	1	1	0								0	3	3	3	3	0	0
10	6	9	7	10	20	34	44	51	[illegible]	16		13	16	15	11	2	1	3	1	1	1	0				0	0	3	11	14	23	20	25	25	8
17	13	13	8	6	13	43	81	83	39	41	49	46	45	30	18	1	0	2	0	0	0	0			1	1	1	8	13	18	[illegible]	22	17	15	17
32	19	15	21	29	35	51	140	117	101	110	111	82	53	23	10	0	0	0			0	0	0	2	11	15	23	32	18	13	15	14	16	17	20
74	60	57	85	112	104	100	187	97	99	93	121	112	113	77	13	3	3	2	3	2	2	1	0	3	1	15	40	33	27	21	19	18	14	15	14
125	132	121	135	134	133	121	214	129	111	105	98	96	99	73	5	3	4	3	5	5	2	1	4	5	10	16	56	35	34	30	27	20	22	20	22
110	113	99	100	97	80	28	45	42	31	43	63	51	32	49	1	0	1	1	1	2	0	1	4	7	11	12	30	15	12	11	15	22	22	20	17
64	49	46	43	41	39	18	11	6	7	17	27	38	42	23	5	1	2	0	0	0	0	0	0	0	0	1	8	4	3	2	2	3	5	11	13
26	32	44	48	48	47	40	33	34	37	44	36	46	43	43	30	3	1	1	0	1	0	0	0				1	2	3	2	2	1	3	3	6
10	13	15	22	20	31	49	32	43	50	49	38	45	43	39	31	8	5	3	1	1	1	1	0				1	9	8	6	5	3	4	6	6
3	3	3	3	5	11	12	11	12	12	[illegible]	10	14	13	13	12	6	5	7	4	3	2	1						2	11	15	11	12	10	8	1
														1	1	1	2	2	2	1	1									0	0	0	0		

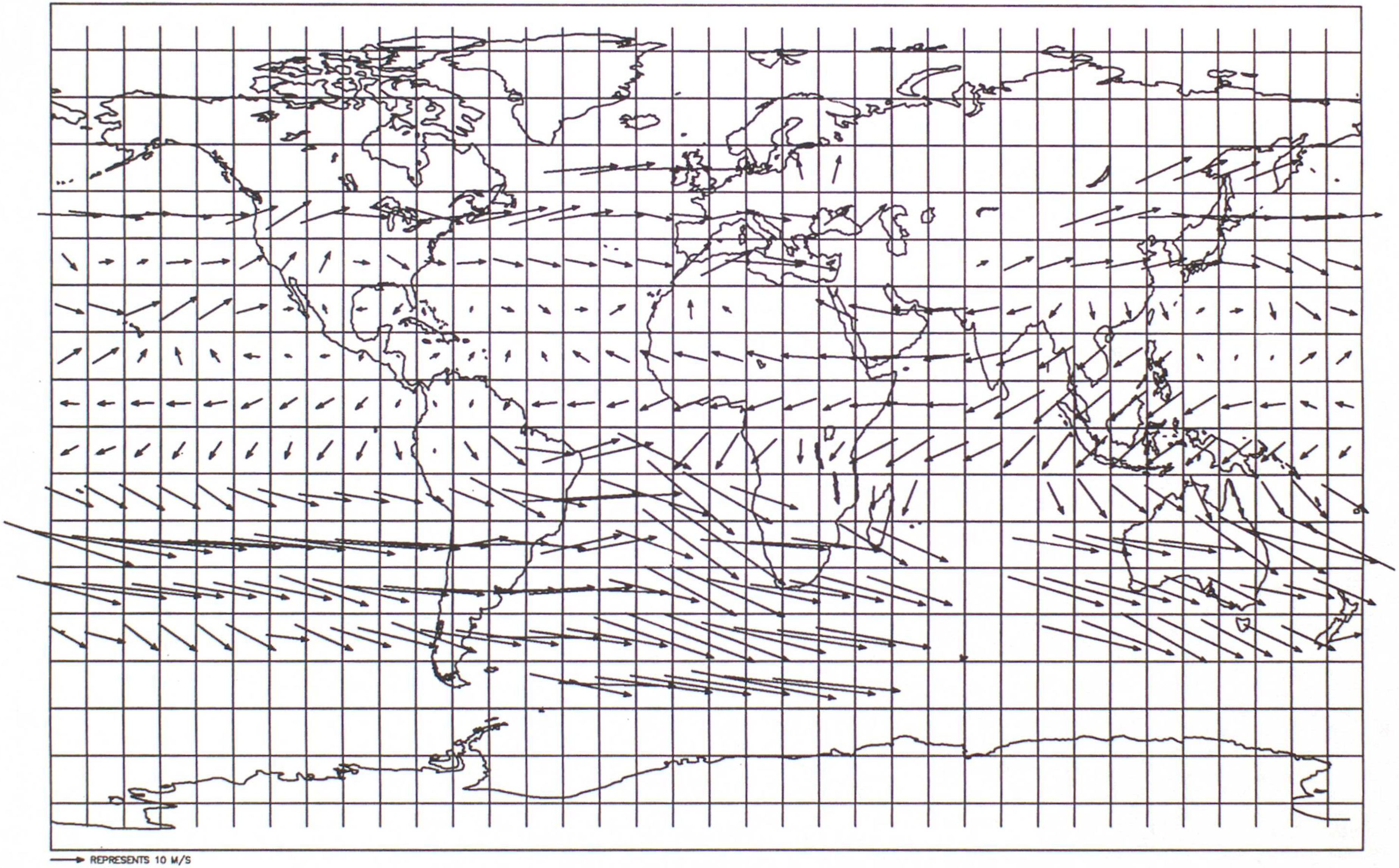
SATOB VECTOR MEAN WINDS BETWEEN 101–400 HPA

JULY 1997

ALL OBSERVATIONS

ARROWS PLOTTED WHERE MORE THAN 10 OBS ARE PRESENT

FIGURE 21


REPRESENTS 10 M/S

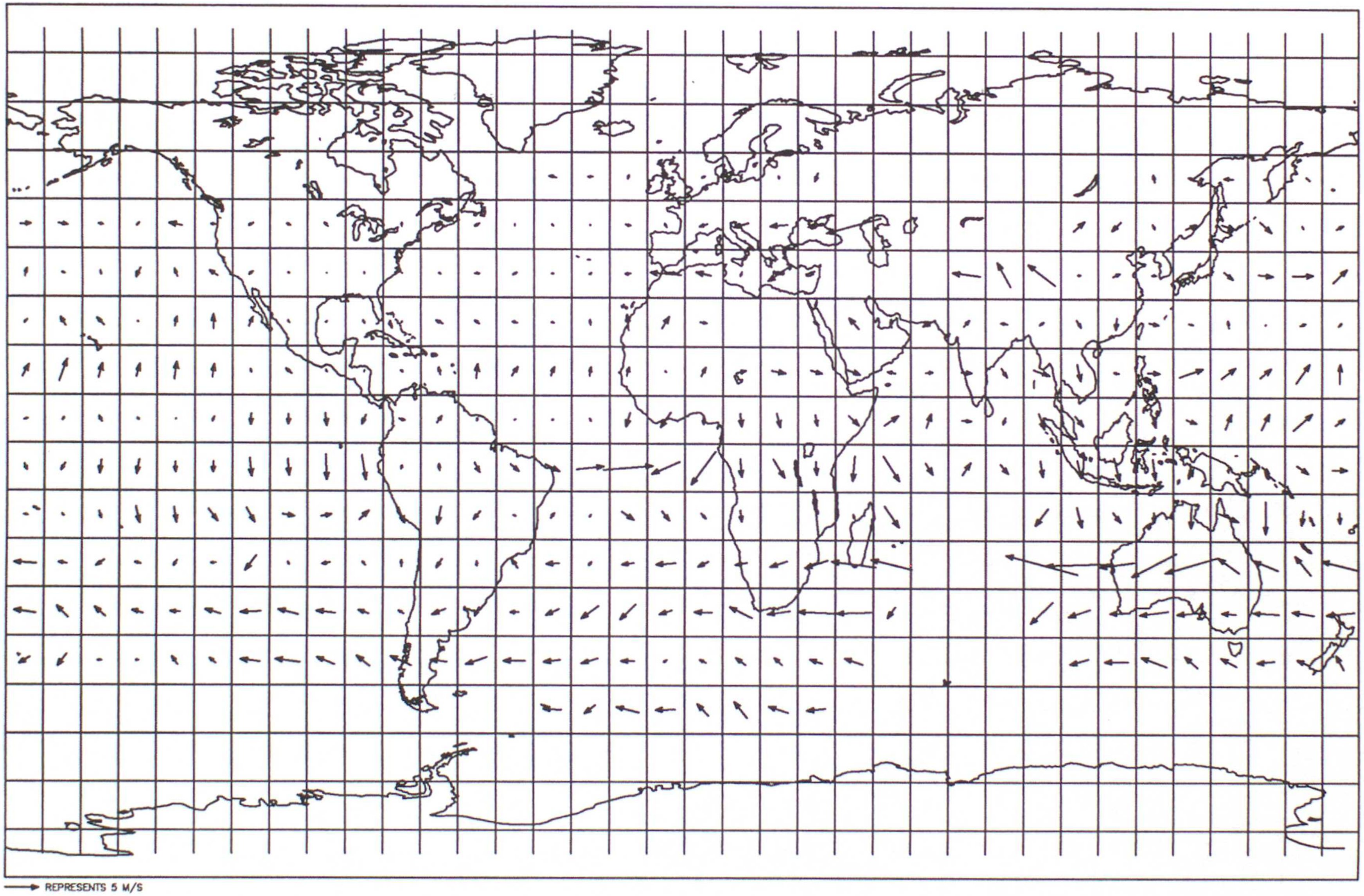
SATOB O-B VECTOR WIND DIFFERENCES BETWEEN 101-400 HPA

FIGURE 22

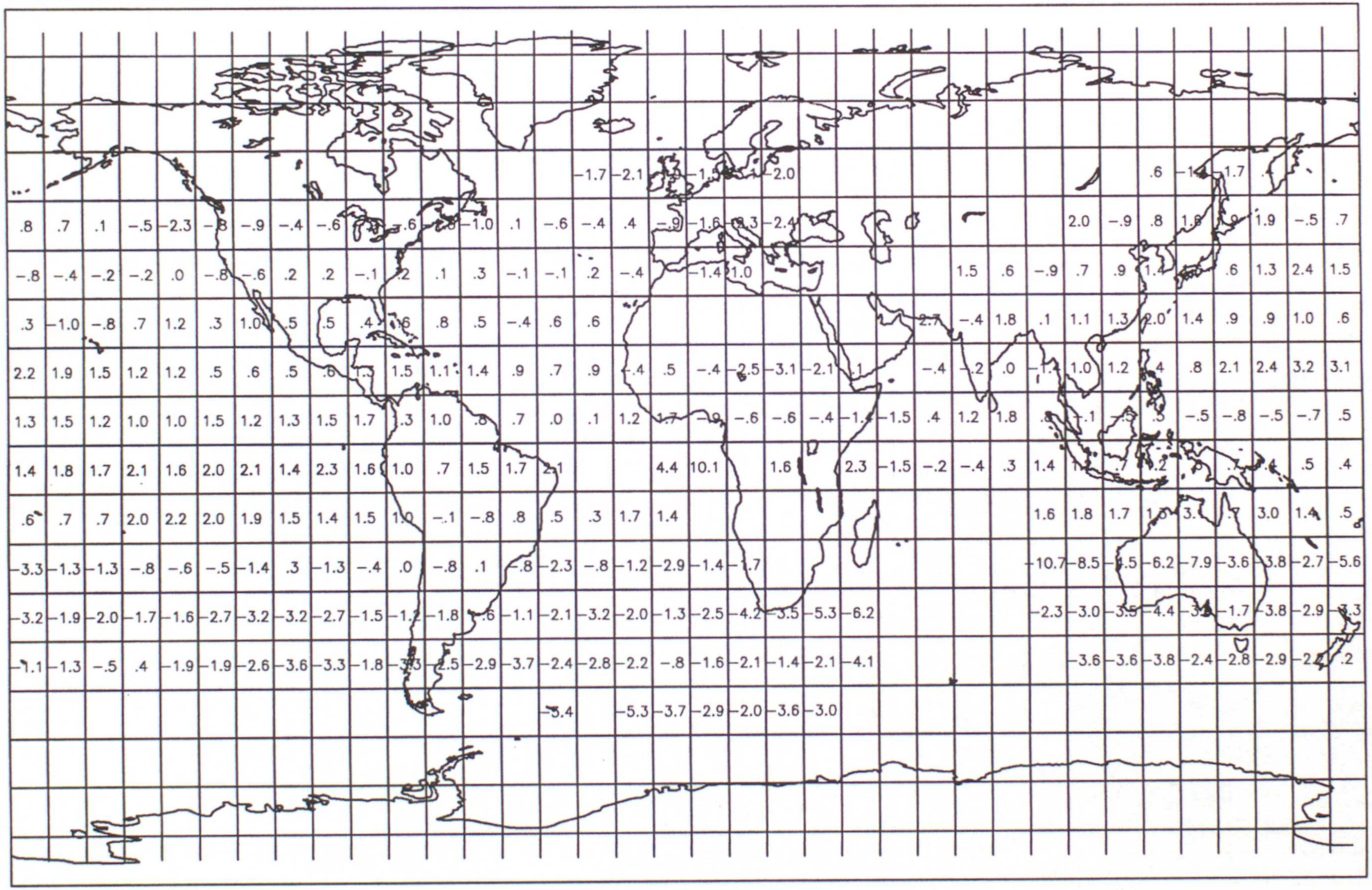
JULY 1997

ALL OBSERVATIONS

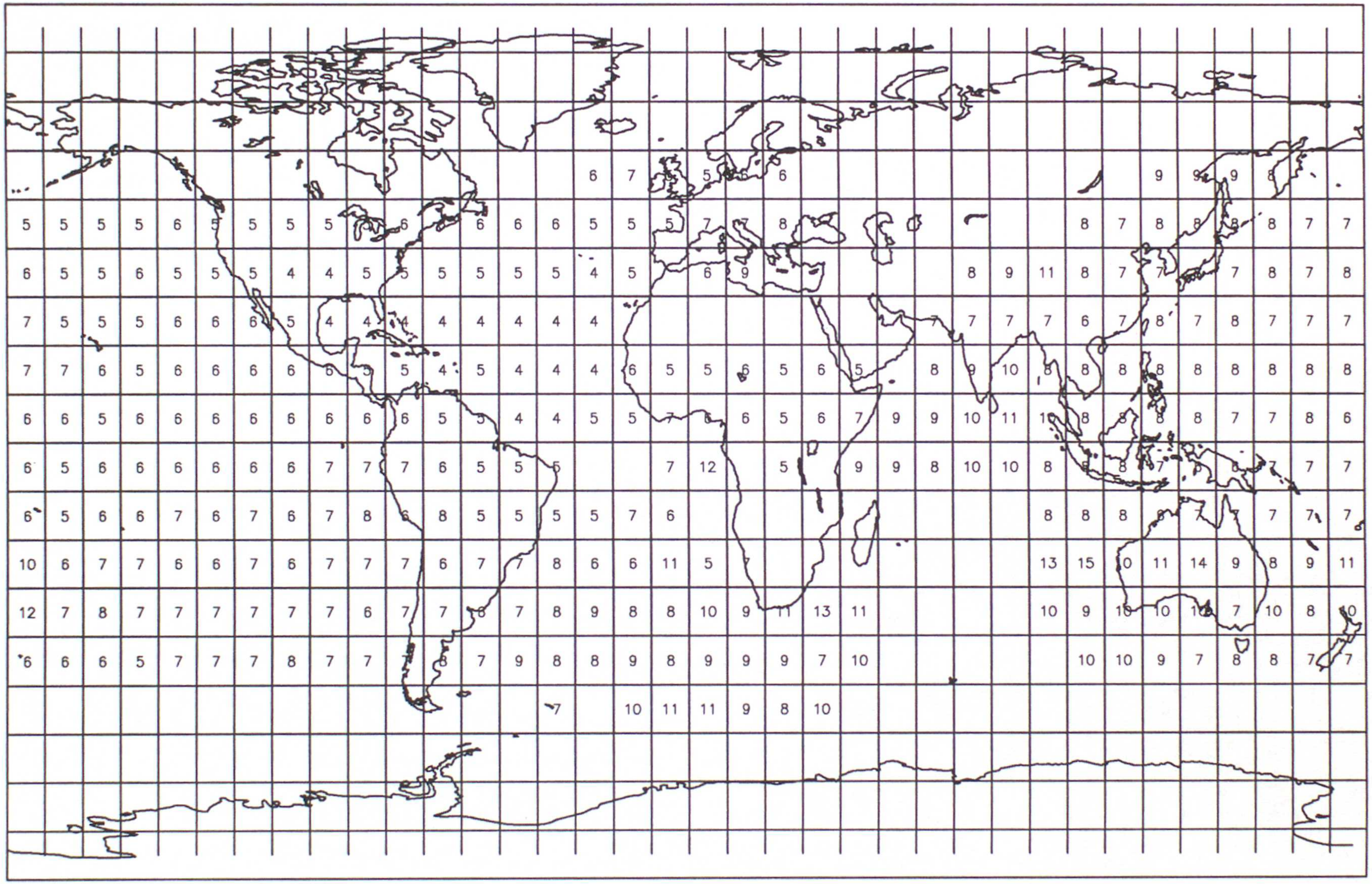
ARROWS PLOTTED WHERE MORE THAN 10 OBS ARE PRESENT


REPRESENTS 5 M/S

SATOBS : MEAN O–B SPEED DIFFERENCES (M/S) BETWEEN 101 AND 400 HPA FIGURE 23
JULY 1997
USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 10 OBS ARE PRESENT


-1.7 -2.1 -1.5 -2.0 .6 -1.7
.8 .7 .1 -.5 -2.3 -.8 -.9 -.4 -.6 .6 -.8 -1.0 .1 -.6 -.4 .4 -.9 -1.6 -.3 -2.4 2.0 -.9 .8 1.6 .9 1.9 -.5 .7
-.8 -.4 -.2 -.2 .0 -.8 -.6 .2 .2 -.1 .2 .1 .3 -.1 -.1 .2 -.4 -1.4 1.0 1.5 .6 -.9 .7 .9 1.4 .6 1.3 2.4 1.5
.3 -1.0 -.8 .7 1.2 .3 1.0 .5 .5 .4 .6 .8 .5 -.4 .6 .6 2.7 -.4 1.8 .1 1.1 1.3 2.0 1.4 .9 .9 1.0 .6
2.2 1.9 1.5 1.2 1.2 .5 .6 .5 .6 1.3 1.5 1.1 1.4 .9 .7 .9 .4 .5 -.4 -2.5 -3.1 -2.1 .1 -.4 .2 .0 -1.4 1.0 1.2 .4 .8 2.1 2.4 3.2 3.1
1.3 1.5 1.2 1.0 1.0 1.5 1.2 1.3 1.5 1.7 .3 1.0 .8 .7 .0 .1 1.2 1.7 -.9 -.6 -.6 -.4 -1.4 -1.5 .4 1.2 1.8 .8 .1 .5 .5 -.5 -.8 -.5 -.7 .5
1.4 1.8 1.7 2.1 1.6 2.0 2.1 1.4 2.3 1.6 1.0 .7 1.5 1.7 2.1 4.4 10.1 1.6 2.3 -1.5 -.2 -.4 .3 1.4 1.2 .7 .2 .4 .5 .4
.6 .7 .7 2.0 2.2 2.0 1.9 1.5 1.4 1.5 1.0 -.1 -.8 .8 .5 .3 1.7 1.4 1.6 1.8 1.7 1.6 3.1 .7 3.0 1.4 .5
-3.3 -1.3 -1.3 -.8 -.6 -.5 -1.4 .3 -1.3 -.4 .0 -.8 .1 -.8 -2.3 -.8 -1.2 -2.9 -1.4 -.7 -10.7 -8.5 -4.5 -6.2 -7.9 -3.6 -3.8 -2.7 -5.6
-3.2 -1.9 -2.0 -1.7 -1.6 -2.7 -3.2 -3.2 -2.7 -1.5 -1.2 -1.8 -.6 -1.1 -2.1 -3.2 -2.0 -1.3 -2.5 -4.2 -3.5 -5.3 -6.2 -2.3 -3.0 -3.5 -4.4 -3.8 -1.7 -3.8 -2.9 -3.3
-1.1 -1.3 -.5 .4 -1.9 -1.9 -2.6 -3.6 -3.3 -1.8 -3.3 -2.5 -2.9 -3.7 -2.4 -2.8 -2.2 -.8 -1.6 -2.1 -1.4 -2.1 -4.1 -3.6 -3.6 -3.8 -2.4 -2.8 -2.9 -2.4 .2
-5.4 -5.3 -3.7 -2.9 -2.0 -3.6 -3.0

SATOBS : RMS O−B VECTOR DIFFERENCES (M/S) BETWEEN 101 AND 400 HPA FIGURE 24
JULY 1997
USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 10 OBS ARE PRESENT


6 7 8 5 6 6 9 9 9 8
5 5 5 5 6 5 5 5 5 6 6 6 6 5 5 5 7 7 8 8 7 8 8 8 8 7 7
6 5 5 6 5 5 5 4 4 5 5 5 5 5 5 4 5 6 9 8 9 11 8 7 7 7 8 7 8
7 5 5 5 6 6 6 5 4 4 4 4 4 4 4 4 7 7 7 7 6 7 8 7 8 7 7 7
7 7 6 5 6 6 6 6 6 5 5 4 5 4 4 4 6 5 5 6 5 6 5 8 9 10 8 8 8 8 8 8 8 8 8
6 6 5 6 6 6 6 6 6 6 6 5 5 4 4 5 5 7 6 6 5 6 7 9 9 10 11 10 8 8 8 8 7 7 8 6
6 5 6 6 6 6 6 6 7 7 7 6 5 5 5 7 12 5 9 9 8 10 10 8 8 8 7 8 8 7 7 7
6 5 6 6 7 6 7 6 7 8 6 8 5 5 5 5 7 6 8 8 8 8 7 7 7 7 7
10 6 7 7 6 6 7 6 7 7 7 6 7 7 8 6 6 11 5 7 13 15 10 11 14 9 8 9 11
12 7 8 7 7 7 7 7 7 6 7 7 8 7 8 9 8 8 10 9 11 13 11 10 9 10 10 10 7 10 8 10
6 6 6 5 7 7 7 8 7 7 8 7 9 8 8 9 8 9 9 9 7 10 10 10 9 7 8 8 7 7
7 10 11 11 9 8 10

MONITORING OF SATELLITE TEMPERATURES

MONITORING CENTRE: BRACKNELL

MONTH: July, 1997

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from NOAA-12, NOAA-14 500 km.

Standard of comparison :Background field from Bracknell global model.

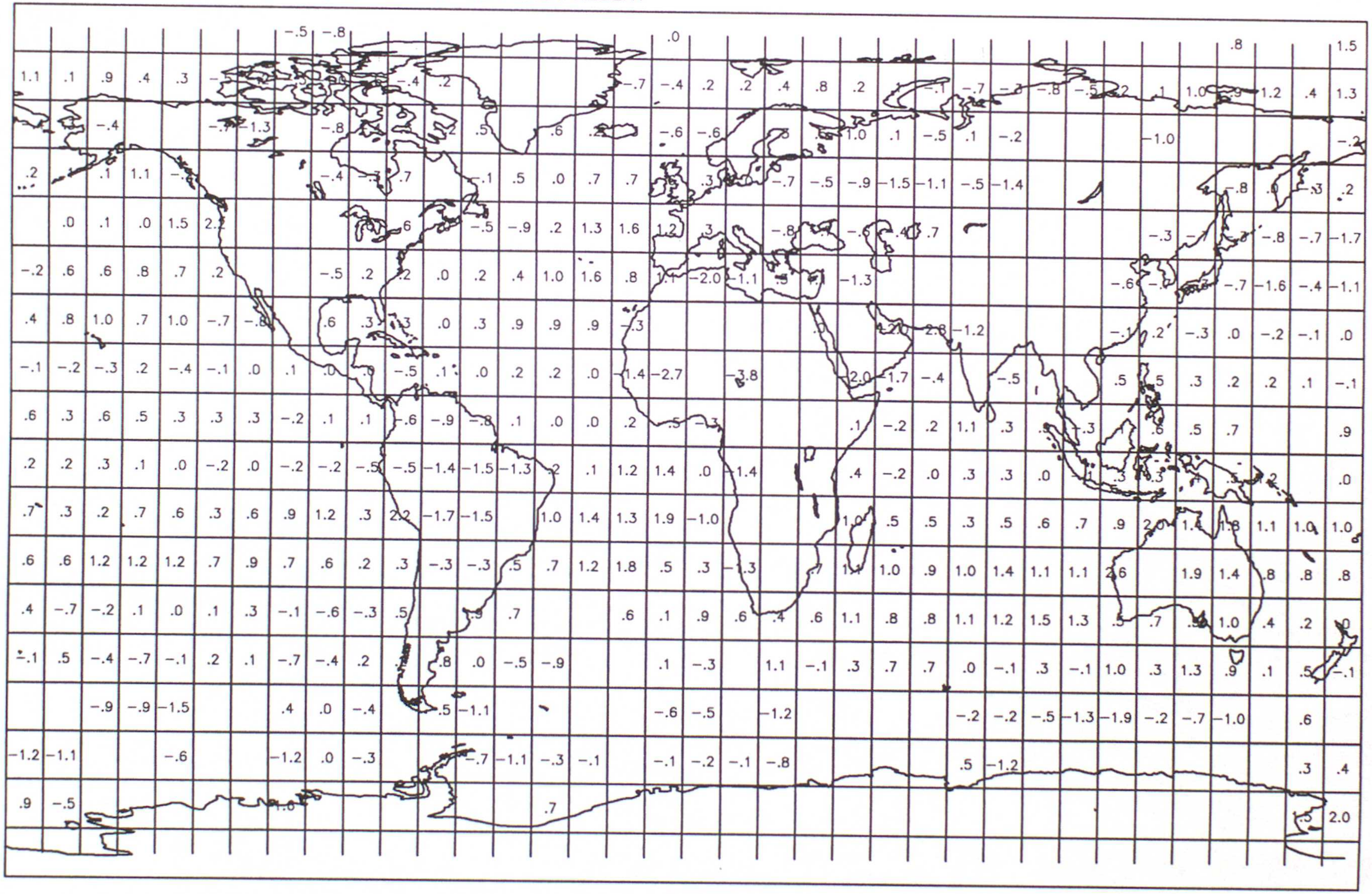
Selection Criteria :All SATEM soundings where number of observations > 30.

Data Extracted :Layer: 850 - 1000 hPa
100 - 300 hPa
30 - 50 hPa

:Mean observation minus background temperature differences

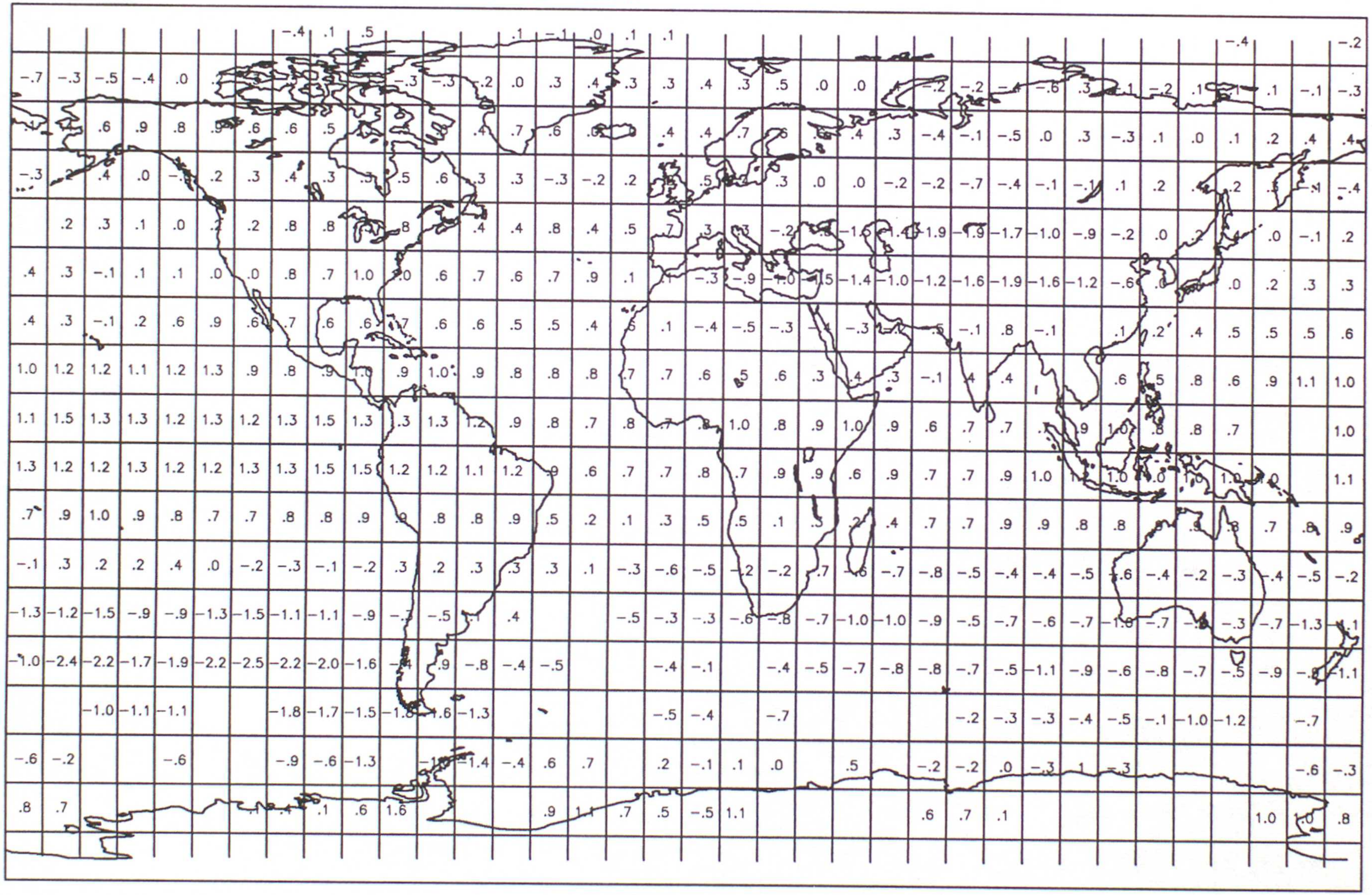
500 KM SATEMS : MEAN O-B TEMPERATURE DIFFERENCES (DEG C) : 850 TO 1000 HPA
JULY 1997
NOAA-12, USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT

FIGURE 25


-.5 -.8 .0 .8 1.5
1.1 .1 .9 .4 .3 -.4 .2 -.7 -.4 .2 .2 .4 .8 .2 -.1 -.7 -.8 -.5 .2 .1 1.0 .9 1.2 .4 1.3
-.4 -1.3 -.8 .5 .6 -.6 -.6 1.0 .1 -.5 .1 -.2 -1.0 -.2
.2 .1 1.1 -.4 .7 -.1 .5 .0 .7 .7 .3 -.7 -.5 -.9 -1.5 -1.1 -.5 -1.4 -.8 -.3 .2
.0 .1 .0 1.5 2.2 .6 -.5 -.9 .2 1.3 1.6 1.2 .3 -.8 .4 .7 -.3 -.8 -.7 -1.7
-.2 .6 .6 .8 .7 .2 -.5 .2 .2 .0 .2 .4 1.0 1.6 .8 -2.0 -1.1 -1.3 -.6 -.7 -1.6 -.4 -1.1
.4 .8 1.0 .7 1.0 -.7 .6 .3 .0 .3 .9 .9 .9 -.3 2.8 -1.2 .2 -.3 .0 -.2 -.1 .0
-.1 -.2 -.3 .2 -.4 -.1 .0 .1 -.5 .1 .0 .2 .2 .0 -1.4 -2.7 -3.8 2.0 -1.7 -.4 -.5 .5 .5 .3 .2 .2 .1 -.1
.6 .3 .6 .5 .3 .3 .3 -.2 .1 .1 -.6 -.9 .1 .0 .0 .2 .5 .1 -.2 .2 1.1 .3 -.3 .6 .5 .7 .9
.2 .2 .3 .1 .0 -.2 .0 -.2 -.2 -.5 -.5 -1.4 -1.5 -1.3 .2 .1 1.2 1.4 .0 -1.4 .4 -.2 .0 .3 .3 .0 .3 .2 .0
.7 .3 .2 .7 .6 .3 .6 .9 1.2 .3 2.2 -1.7 -1.5 1.0 1.4 1.3 1.9 -1.0 1.0 .5 .5 .3 .5 .6 .7 .9 2.0 1.1 1.0 1.0
.6 .6 1.2 1.2 1.2 .7 .9 .7 .6 .2 .3 -.3 -.3 .5 .7 1.2 1.8 .5 .3 -1.3 .7 1.0 .9 1.0 1.4 1.1 1.1 2.6 1.9 1.4 .8 .8 .8
.4 -.7 -.2 .1 .0 .1 .3 -.1 -.6 -.3 .5 .7 .6 .1 .9 .6 .4 .6 1.1 .8 .8 1.1 1.2 1.5 1.3 .5 .7 1.0 .4 .2 .0
.1 .5 -.4 -.7 -.1 .2 .1 -.7 -.4 .2 .8 .0 -.5 -.9 .1 -.3 1.1 -.1 .3 .7 .7 .0 -.1 .3 -.1 1.0 .3 1.3 .9 .1 .5 -.1
-.9 -.9 -1.5 .4 .0 -.4 .5 -1.1 -.6 -.5 -1.2 -.2 -.2 -.5 -1.3 -1.9 -.2 -.7 -1.0 .6
-1.2 -1.1 -.6 -1.2 .0 -.3 -.7 -1.1 -.3 -.1 -.1 -.2 -.1 -.8 .5 -1.2 .3 .4
.9 -.5 .7 .5 2.0

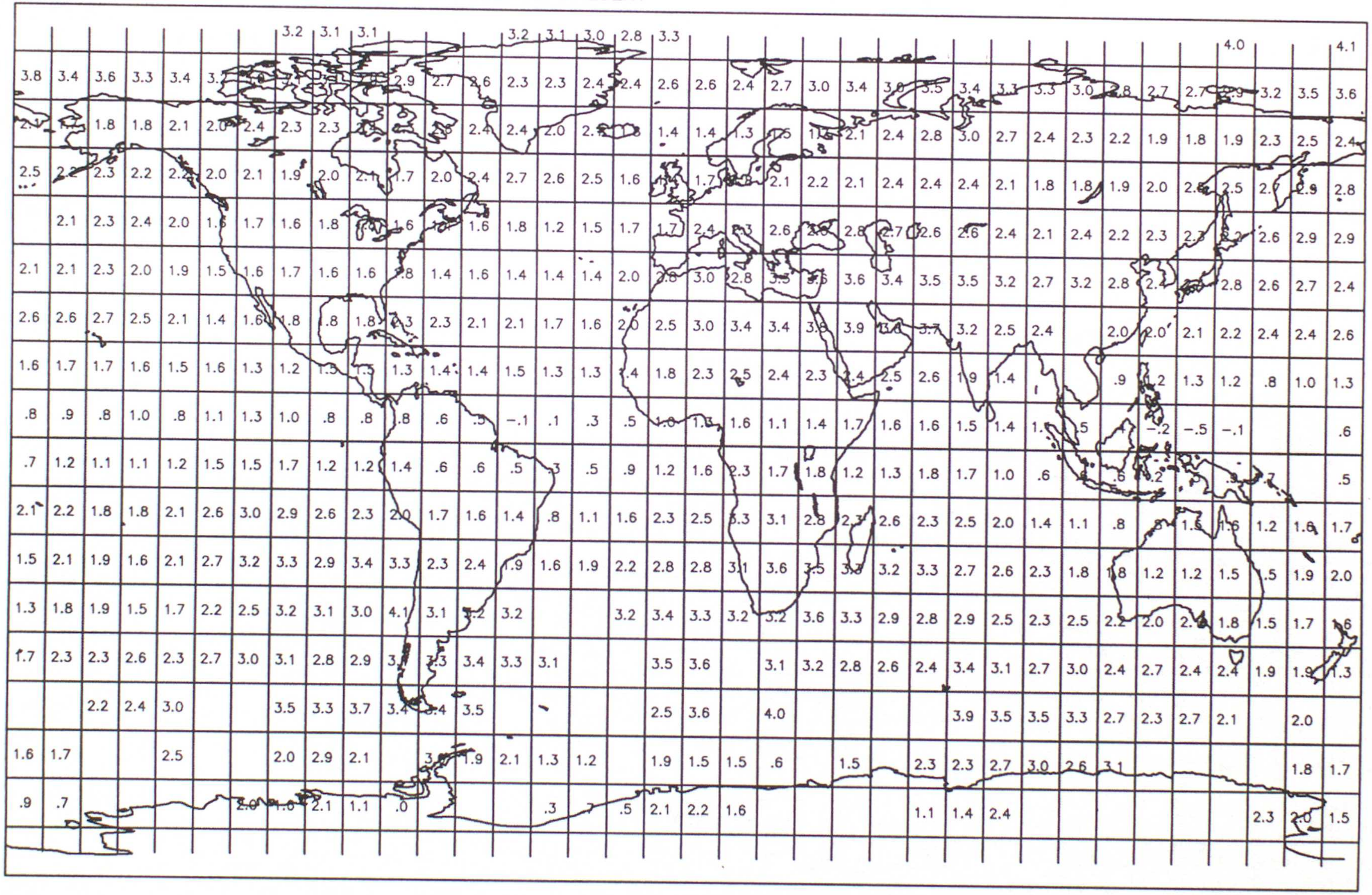
500 KM SATEMS : MEAN O–B TEMPERATURE DIFFERENCES (DEG C) : 100 TO 300 HPA
JULY 1997
NOAA–12, USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT

FIGURE 26


-.4 .1 .5 .1 -.1 .0 .1 .1 -.4 -.2
-.7 -.3 -.5 -.4 .0 -.3 -.3 -.2 .0 .3 .4 .3 .3 .4 .3 .5 .0 .0 -.2 -.2 -.4 -.6 .3 -.1 -.2 .1 -.1 .1 -.1 -.3
.6 .9 .8 .9 .6 .6 .5 .4 .7 .6 .6 .4 .4 .7 .6 .4 .3 -.4 -.1 -.5 .0 .3 -.3 .1 .0 .1 .2 .4 .4
-.3 .2 .4 .0 -.1 .2 .3 .4 .3 .3 .5 .6 .3 .3 -.3 -.2 .2 .5 .5 .3 .0 .0 -.2 -.2 -.7 -.4 -.1 -.1 .1 .2 .2 .2 .1 -.4
.2 .3 .1 .0 .2 .2 .8 .8 .8 .8 .4 .4 .8 .4 .5 .7 .3 .3 -.2 -.2 -1.6 -1.4 -1.9 -1.9 -1.7 -1.0 -.9 -.2 .0 .2 .4 .0 -.1 .2
.4 .3 -.1 .1 .1 .0 .0 .8 .7 1.0 1.0 .6 .7 .6 .7 .9 .1 .1 -.3 -.9 -1.0 -1.5 -1.4 -1.0 -1.2 -1.6 -1.9 -1.6 -1.2 -.6 .0 .0 .2 .3 .3
.4 .3 -.1 .2 .6 .9 .6 .7 .6 .6 .7 .6 .6 .5 .5 .4 .5 .1 -.4 -.5 -.3 -.1 -.3 -.2 -.5 -.1 .8 -.1 .1 .2 .4 .5 .5 .5 .6
1.0 1.2 1.2 1.1 1.2 1.3 .9 .8 .9 1.0 .9 1.0 .9 .8 .8 .8 .7 .7 .6 .5 .6 .3 .4 .3 -.1 .4 .4 .6 .5 .8 .6 .9 1.1 1.0
1.1 1.5 1.3 1.3 1.2 1.3 1.2 1.3 1.5 1.3 1.3 1.3 1.2 .9 .8 .7 .8 .7 .8 1.0 .8 .9 1.0 .9 .6 .7 .7 .7 .9 1.0 .8 .8 .7 1.0
1.3 1.2 1.2 1.3 1.2 1.2 1.3 1.3 1.5 1.5 1.2 1.2 1.1 1.2 .9 .6 .7 .7 .8 .7 .9 .9 .6 .9 .7 .7 .9 1.0 1.1 1.0 1.0 1.0 1.0 1.0 1.1
.7 .9 1.0 .9 .8 .7 .7 .8 .8 .9 .9 .8 .8 .9 .5 .2 .1 .3 .5 .5 .1 .3 .2 .4 .7 .7 .9 .9 .8 .8 .8 .9 .8 .7 .8 .9
-.1 .3 .2 .2 .4 .0 -.2 -.3 -.1 -.2 .3 .2 .3 .3 .3 .1 -.3 -.6 -.5 -.2 -.2 .7 -.6 -.7 -.8 -.5 -.4 -.4 -.5 -.6 -.4 -.2 -.3 -.4 -.5 -.2
-1.3 -1.2 -1.5 -.9 -.9 -1.3 -1.5 -1.1 -1.1 -.9 -.7 -.5 -.1 .4 -.5 -.3 -.3 -.6 -.8 -.7 -1.0 -1.0 -.9 -.5 -.7 -.6 -.7 -1.0 -.7 -.8 -.3 -.7 -1.3 -1.1
-1.0 -2.4 -2.2 -1.7 -1.9 -2.2 -2.5 -2.2 -2.0 -1.6 -.4 .9 -.8 -.4 -.5 -.4 -.1 -.4 -.5 -.7 -.8 -.8 -.7 -.5 -1.1 -.9 -.6 -.8 -.7 -.5 -.9 -.8 -1.1
-1.0 -1.1 -1.1 -1.8 -1.7 -1.5 -1.8 -1.6 -1.3 -.5 -.4 -.7 -.2 -.3 -.3 -.4 -.5 -.1 -1.0 -1.2 -.7
-.6 -.2 -.6 -.9 -.6 -1.3 -1.4 -.4 .6 .7 .2 -.1 .1 .0 .5 -.2 -.2 .0 -.3 .1 -.3 -.6 -.3
.8 .7 .4 .1 .6 1.6 .9 1.1 .7 .5 -.5 1.1 .6 .7 .1 1.0 1.0 .8

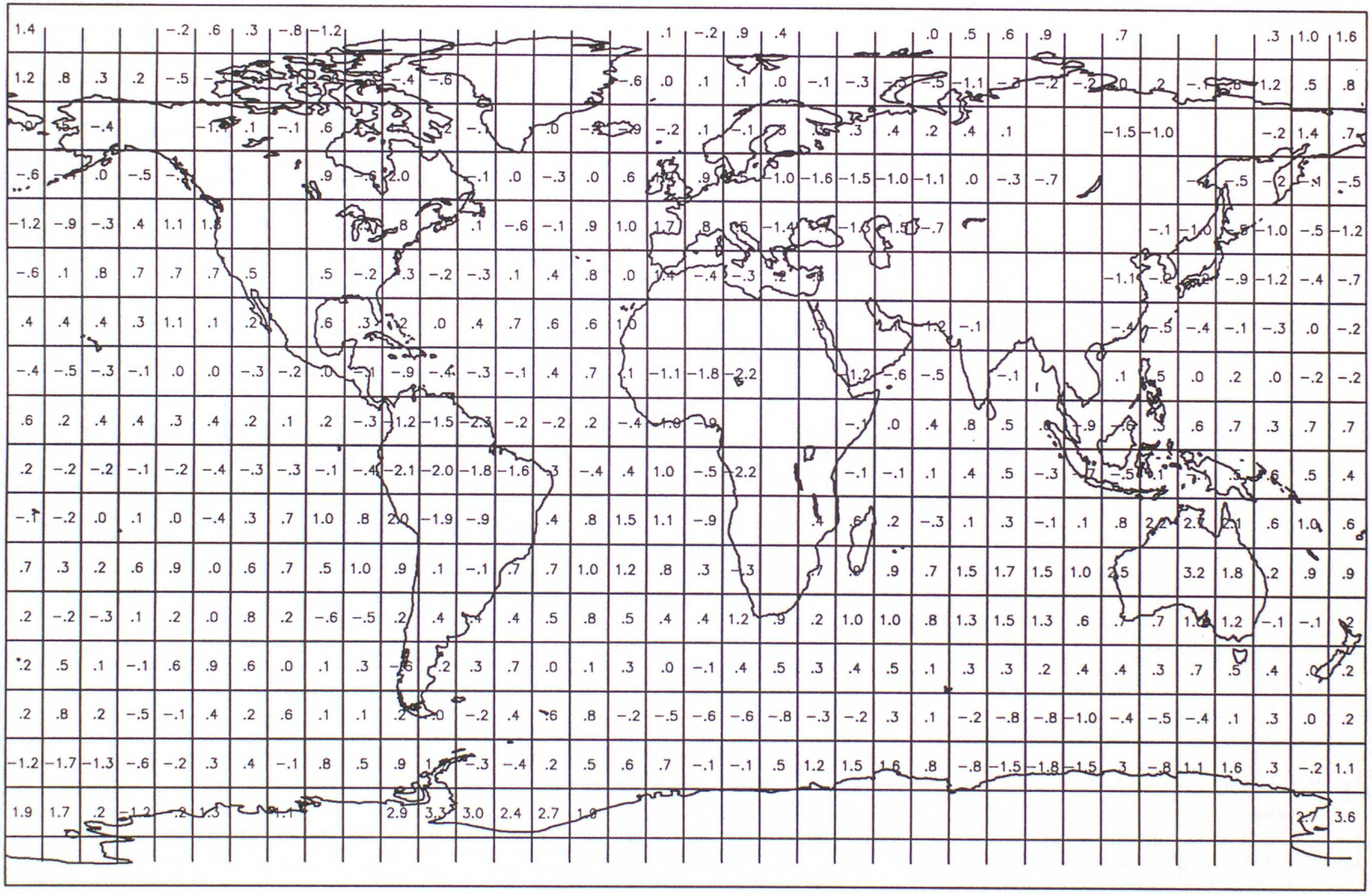
500 KM SATEMS : MEAN O–B TEMPERATURE DIFFERENCES (DEG C) : 30 TO 50 HPA
JULY 1997
NOAA–12, USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT

FIGURE 27

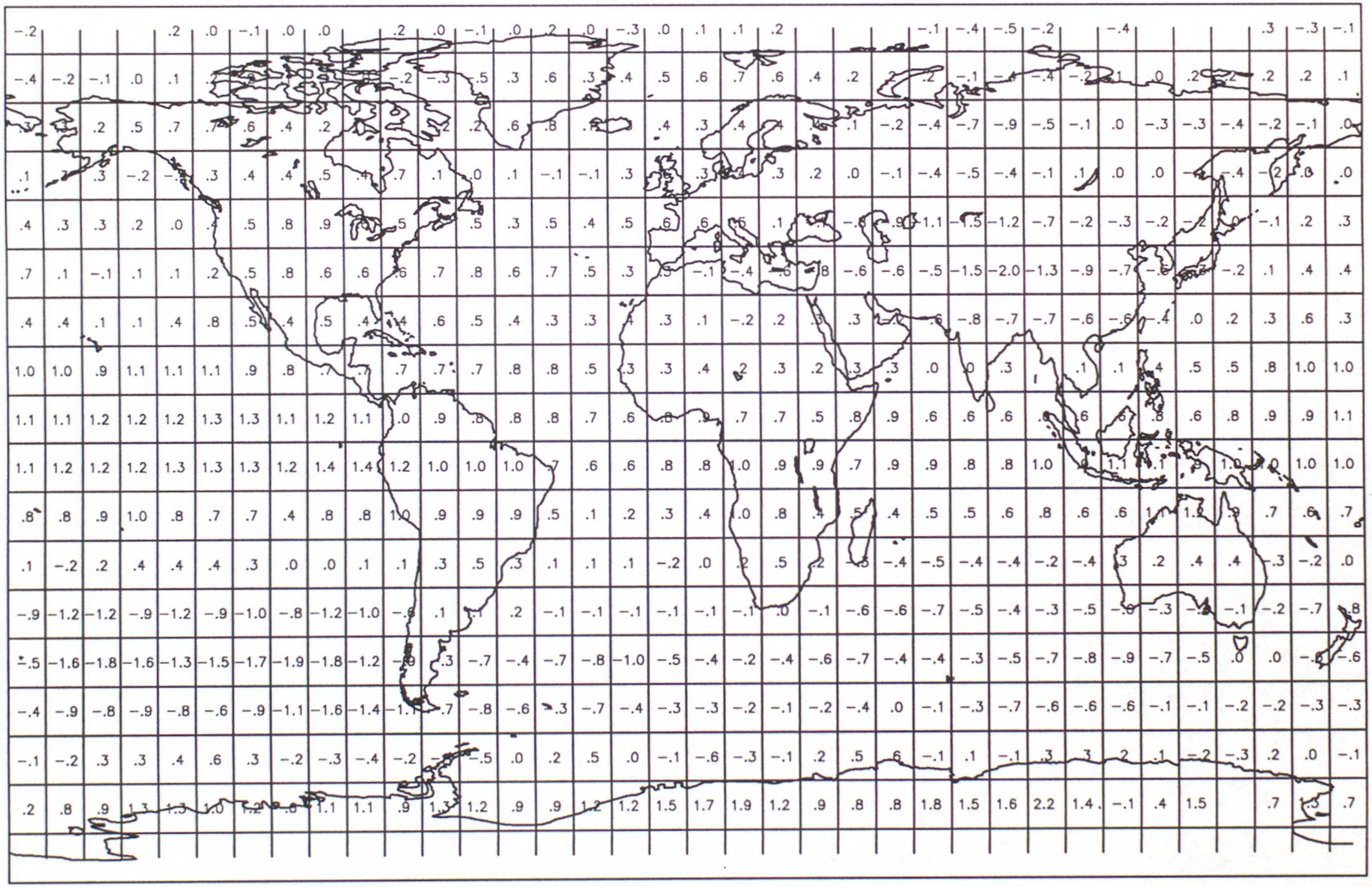


500 KM SATEMS : MEAN O-B TEMPERATURE DIFFERENCES (DEG C) : 850 TO 1000 HPA
JULY 1997
NOAA-14, USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT

FIGURE 28

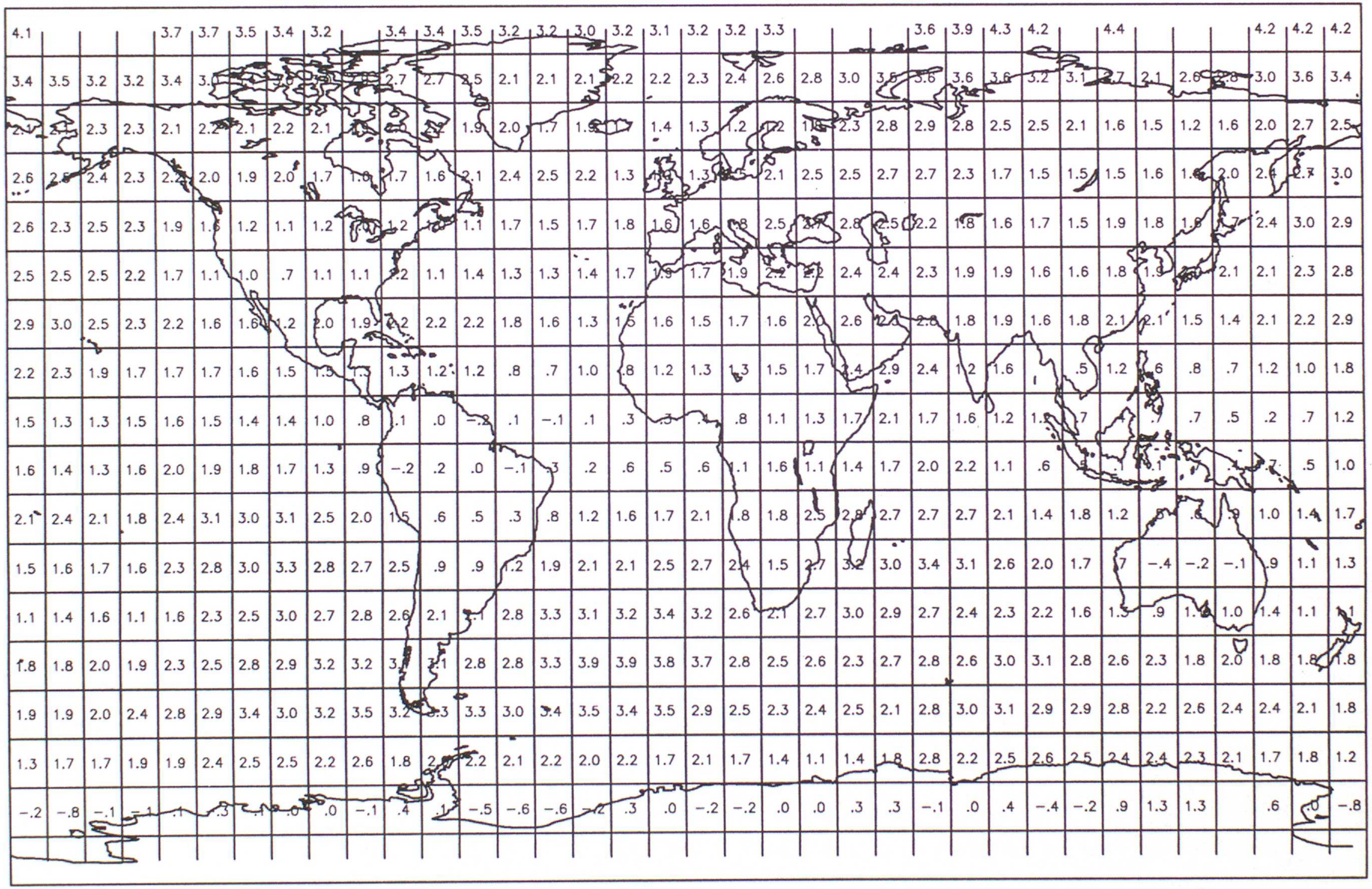


500 KM SATEMS : MEAN O-B TEMPERATURE DIFFERENCES (DEG C) : 100 TO 300 HPA
JULY 1997 FIGURE 29
NOAA-14, USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT



-.2				.2	.0	-.1	.0	.0		.2	.0	-.1	.0	.2	.0	-.3	.0	.1	.1	.2				-.1	-.4	-.5	-.2		-.4				.3	-.3	-.1
-.4	-.2	-.1	.0	.1	.2	[illegible]				-.2	-.3	.5	.3	.6	.3	.4	.5	.6	.7	.6	.4	.2	.2	.2	-.1	-.4	-.4	-.2	.1	.0	.2	.2	.2	.2	.1
.3	.3	.2	.5	.7	.7	.6	.4	.2		[illegible]	.2	.2	.6	.8	[illegible]	[illegible]	.4	.3	.4	.4	[illegible]	.1	-.2	-.4	-.7	-.9	-.5	-.1	.0	-.3	-.3	-.4	-.2	-.1	.0
.1	[illegible]	.3	-.2	[illegible]	.3	.4	.4	.5	.4	.7	.1	.0	.1	-.1	-.1	.3	[illegible]	.3	.4	.3	.2	.0	-.1	-.4	-.5	-.4	-.1	.1	.0	.0	[illegible]	-.4	-.2	.0	.0
.4	.3	.3	.2	.0	.4	.5	.8	.9	[illegible]	.5		.5	.3	.5	.4	.5	.6	.6	.5	.1	.7	-.6	.9	-1.1	-1.5	-1.2	-.7	-.2	-.3	-.2	-.2	.0	-.1	.2	.3
.7	.1	-.1	.1	.1	.2	.5	.8	.6	.6	.6	.7	.8	.6	.7	.5	.3	[illegible]	-.1	-.4	-.6	.8	-.6	-.6	-.5	-1.5	-2.0	-1.3	-.9	-.7	-.6	[illegible]	-.2	.1	.4	.4
.4	.4	.1	.1	.4	.8	.5	.4	.5	.4	.4	.6	.5	.4	.3	.3	.4	.3	.1	-.2	.2	.3	.3	[illegible]	.6	-.8	-.7	-.7	-.6	-.6	-.4	.0	.2	.3	.6	.3
1.0	1.0	.9	1.1	1.1	1.1	.9	.8	.7	.7	.7	.7	.7	.8	.8	.5	.3	.3	.4	.2	.3	.2	.3	.3	.0	.0	.3		.1	.1	.4	.5	.5	.8	1.0	1.0
1.1	1.1	1.2	1.2	1.2	1.3	1.3	1.1	1.2	1.1	1.0	.9	.8	.8	.8	.7	.6	.8	.9	.7	.7	.5	.8	.9	.6	.6	.6	.6	.6	.6	.8	.6	.8	.9	.9	1.1
1.1	1.2	1.2	1.2	1.3	1.3	1.3	1.2	1.4	1.4	1.2	1.0	1.0	1.0	.7	.6	.6	.8	.8	1.0	.9	.9	.7	.9	.9	.8	.8	1.0	.9	1.1	1.1	.9	1.0	1.0	1.0	1.0
.8	.8	.9	1.0	.8	.7	.7	.4	.8	.8	1.0	.9	.9	.9	.5	.1	.2	.3	.4	1.0	.8	.4	.5	.4	.5	.5	.6	.8	.6	.6	1.1	1.2	.9	.7	.6	.7
.1	-.2	.2	.4	.4	.4	.3	.0	.0	.1	.1	.3	.5	.3	.1	.1	.1	-.2	.0	.2	.5	.2	-.3	-.4	-.5	-.4	-.4	-.2	-.4	.3	.2	.4	.4	-.3	-.2	.0
-.9	-1.2	-1.2	-.9	-1.2	-.9	-1.0	-.8	-1.2	-1.0	-.6	.1	.1	.2	-.1	-.1	-.1	-.1	-.1	-.1	.0	-.1	-.6	-.6	-.7	-.5	-.4	-.3	-.5	-.6	-.3	-.3	-.1	-.2	-.7	.8
-.5	-1.6	-1.8	-1.6	-1.3	-1.5	-1.7	-1.9	-1.8	-1.2	-.9	.3	-.7	-.4	-.7	-.8	-1.0	-.5	-.4	-.2	-.4	-.6	-.7	-.4	-.4	-.3	-.5	-.7	-.8	-.9	-.7	-.5	.0	.0	-.6	-.6
-.4	-.9	-.8	-.9	-.8	-.6	-.9	-1.1	-1.6	-1.4	-1.1	.7	-.8	-.6	.3	-.7	-.4	-.3	-.3	-.2	-.1	-.2	-.4	.0	-.1	-.3	-.7	-.6	-.6	-.6	-.1	-.1	-.2	-.2	-.3	-.3
-.1	-.2	.3	.3	.4	.6	.3	-.2	-.3	-.4	-.2	[illegible]	-.5	.0	.2	.5	.0	-.1	-.6	-.3	-.1	.2	.5	.6	-.1	.1	-.1	.3	.3	.2	.1	-.2	-.3	.2	.0	-.1
.2	.8	.9	1.3	1.3	1.0	1.2	.6	1.1	1.1	.9	1.3	1.2	.9	.9	1.2	1.2	1.5	1.7	1.9	1.2	.9	.8	.8	1.8	1.5	1.6	2.2	1.4	-.1	.4	1.5		.7	1.3	.7

500 KM SATEMS : MEAN O–B TEMPERATURE DIFFERENCES (DEG C) : 30 TO 50 HPA
JULY 1997
FIGURE 30
NOAA–14, USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT



4.1				3.7	3.7	3.5	3.4	3.2		3.4	3.4	3.5	3.2	3.2	3.0	3.2	3.1	3.2	3.2	3.3				3.6	3.9	4.3	4.2		4.4				4.2	4.2	4.2
3.4	3.5	3.2	3.2	3.4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	2.7	2.7	3.5	2.1	2.1	2.1	2.2	2.2	2.3	2.4	2.6	2.8	3.0	3.5	3.6	3.6	3.6	3.2	3.1	2.7	2.1	2.6	2.8	3.0	3.6	3.4
2.1	2.1	2.3	2.3	2.1	2.2	2.1	2.2	2.1	[illegible]	[illegible]	2.2	1.9	2.0	1.7	1.9	[illegible]	1.4	1.3	1.2	1.2	1.8	2.3	2.8	2.9	2.8	2.5	2.5	2.1	1.6	1.5	1.2	1.6	2.0	2.7	2.5
2.6	2.5	2.4	2.3	2.2	2.0	1.9	2.0	1.7	1.6	1.7	1.6	2.1	2.4	2.5	2.2	1.3	[illegible]	1.3	[illegible]	2.1	2.5	2.5	2.7	2.7	2.3	1.7	1.5	1.5	1.5	1.6	1.6	2.0	2.4	2.7	3.0
2.6	2.3	2.5	2.3	1.9	1.6	1.2	1.1	1.2	[illegible]	1.2	[illegible]	1.1	1.7	1.5	1.7	1.8	1.6	1.6	[illegible]	2.5	2.7	2.8	2.5	2.2	1.8	1.6	1.7	1.5	1.9	1.8	1.6	1.7	2.4	3.0	2.9
2.5	2.5	2.5	2.2	1.7	1.1	1.0	.7	1.1	1.1	1.2	1.1	1.4	1.3	1.3	1.4	1.7	1.9	1.7	1.9	2.2	2.2	2.4	2.4	2.3	1.9	1.9	1.6	1.6	1.8	1.9	[illegible]	2.1	2.1	2.3	2.8
2.9	3.0	2.5	2.3	2.2	1.6	1.6	1.2	2.0	1.9	2.2	2.2	2.2	1.8	1.6	1.3	1.5	1.6	1.5	1.7	1.6	2.0	2.6	2.3	2.8	1.8	1.9	1.6	1.8	2.1	2.1	1.5	1.4	2.1	2.2	2.9
2.2	2.3	1.9	1.7	1.7	1.7	1.6	1.5	1.5	1.3	1.3	1.2	1.2	.8	.7	1.0	.8	1.2	1.3	1.3	1.5	1.7	2.4	2.9	2.4	1.2	1.6		.5	1.2	.6	.8	.7	1.2	1.0	1.8
1.5	1.3	1.3	1.5	1.6	1.5	1.4	1.4	1.0	.8	.1	.0	−.2	.1	−.1	.1	.3	.3	[illegible]	.8	1.1	1.3	1.7	2.1	1.7	1.6	1.2	[illegible]	.7	[illegible]	[illegible]	.7	.5	.2	.7	1.2
1.6	1.4	1.3	1.6	2.0	1.9	1.8	1.7	1.3	.9	−.2	.2	.0	−.1	.3	.2	.6	.5	.6	1.1	1.6	1.1	1.4	1.7	2.0	2.2	1.1	.6	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	.7	.5	1.0
2.1	2.4	2.1	1.8	2.4	3.1	3.0	3.1	2.5	2.0	1.5	.6	.5	.3	.8	1.2	1.6	1.7	2.1	1.8	1.8	2.5	2.8	2.7	2.7	2.7	2.1	1.4	1.8	1.2	[illegible]	[illegible]	[illegible]	1.0	1.4	1.7
1.5	1.6	1.7	1.6	2.3	2.8	3.0	3.3	2.8	2.7	2.5	.9	.9	1.2	1.9	2.1	2.1	2.5	2.7	2.4	1.5	2.7	3.2	3.0	3.4	3.1	2.6	2.0	1.7	.7	−.4	−.2	−.1	.9	1.1	1.3
1.1	1.4	1.6	1.1	1.6	2.3	2.5	3.0	2.7	2.8	2.6	2.1	[illegible]	2.8	3.3	3.1	3.2	3.4	3.2	2.6	2.1	2.7	3.0	2.9	2.7	2.4	2.3	2.2	1.6	1.5	.9	[illegible]	1.0	1.4	1.1	1.1
1.8	1.8	2.0	1.9	2.3	2.5	2.8	2.9	3.2	3.2	[illegible]	3.1	2.8	2.8	3.3	3.9	3.9	3.8	3.7	2.8	2.5	2.6	2.3	2.7	2.8	2.6	3.0	3.1	2.8	2.6	2.3	1.8	2.0	1.8	1.8	1.8
1.9	1.9	2.0	2.4	2.8	2.9	3.4	3.0	3.2	3.5	3.2	[illegible]	3.3	3.0	3.4	3.5	3.4	3.5	2.9	2.5	2.3	2.4	2.5	2.1	2.8	3.0	3.1	2.9	2.9	2.8	2.2	2.6	2.4	2.4	2.1	1.8
1.3	1.7	1.7	1.9	1.9	2.4	2.5	2.5	2.2	2.6	1.8	[illegible]	2.2	2.1	2.2	2.0	2.2	1.7	2.1	1.7	1.4	1.1	1.4	1.8	2.8	2.2	2.5	2.6	2.5	2.4	2.4	2.3	2.1	1.7	1.8	1.2
−.2	−.8	−.1	−.1	.1	.3	.1	.0	.0	−.1	.4	.1	−.5	−.6	−.6	−.2	.3	.0	−.2	−.2	.0	.0	.3	.3	−.1	.0	.4	−.4	−.2	.9	1.3	1.3		.6	.0	−.8

TABLE 8

MONTHLY MONITORING OF MARINE SURFACE OBSERVATIONS (COSNA)
DATA TYPE:- DRIFTER
MONITORING CENTRE: BRACKNELL
MONTH: July, 1997

Monitoring procedures

Period		:One calendar month.
Data monitored		:Reports from each unique identifier for drifting buoy.
Area monitored		:10°N - 80°N, 85°W - 0°W
Standard of comparison		:Background field from Bracknell global model.
Position		:Average latitude and longitude for period.
Observation times		:All hours combined.
Elements monitored		:Mean sea-level pressure (hPa) :Wind speed (m s^{-1}) :Wind direction (degrees)
Parameters monitored		
	:NOBS	:Number of observations received excluding duplicates.
	:NGE	:Number of observations with gross errors.
	:PGE	:Percentage of observations with gross errors.
	:SD	:SD of difference of observations from background values excluding those with gross errors.
	:BIAS	:Mean difference of observations from background values excluding those with gross errors. **N.B. A positive bias indicates the observation is veered to the background**
	:RMS	:Root Mean Square difference of observations from background values excluding those with gross errors
GROSS ERROR LIMITS	:15 hPa (pressure) :25 m s^{-1} (Vector Wind)	

N.B. Observations of wind direction are only included in the wind direction statistics if the observed OR background wind speed > 5 m s^{-1}

IDENTIFIER	LAT.	LONG.	HOUR	ELEM	LEVEL	NOBS	NGE	PGE	SD	BIAS	RMS
MEAN SEA LEVEL PRESSURE											
09737	64.4	-56.4	ALL	MSLP	SUR	1	0	0	0.0	-2.0	2.0
13903	25.7	-38.2	ALL	MSLP	SUR	251	0	0	0.7	1.0	1.2
13905	23.7	-44.8	ALL	MSLP	SUR	252	0	0	0.8	0.6	1.0
13906	16.5	-49.3	ALL	MSLP	SUR	252	0	0	1.0	0.6	1.1
13910	25.1	-45.6	ALL	MSLP	SUR	239	0	0	0.7	0.3	0.8
13911	26.4	-52.3	ALL	MSLP	SUR	256	0	0	0.8	0.9	1.2
13912	17.7	-61.8	ALL	MSLP	SUR	240	0	0	1.1	1.3	1.8
13913	20.4	-47.5	ALL	MSLP	SUR	245	0	0	0.9	1.2	1.5
13915	22.8	-49.0	ALL	MSLP	SUR	240	0	0	0.9	-0.3	0.9
29707	39.1	-48.4	ALL	MSLP	SUR	2	0	0	0.4	-0.5	0.7
41529	36.6	-32.3	ALL	MSLP	SUR	284	0	0	0.7	0.2	0.7
41530	31.5	-25.9	ALL	MSLP	SUR	271	0	0	0.6	0.2	0.6
41611	15.0	-78.6	ALL	MSLP	SUR	266	0	0	0.9	-0.1	0.9
41613	22.7	-70.2	ALL	MSLP	SUR	211	0	0	0.9	0.7	1.1
41922	26.1	-48.4	ALL	MSLP	SUR	246	0	0	0.7	1.5	1.7
41924	22.8	-51.7	ALL	MSLP	SUR	233	0	0	0.9	-0.8	1.2
41943	13.0	-63.1	ALL	MSLP	SUR	171	0	0	1.1	0.7	1.3
44513	53.2	-17.6	ALL	MSLP	SUR	283	1	0	0.9	0.0	0.9
44605	47.3	-27.2	ALL	MSLP	SUR	894	0	0	0.8	0.2	0.9
44607	49.2	-31.6	ALL	MSLP	SUR	964	0	0	1.1	0.3	1.1
44608	54.4	-28.3	ALL	MSLP	SUR	1035	0	0	1.1	0.2	1.2
44613	59.8	-31.5	ALL	MSLP	SUR	1000	10	1	1.0	-0.2	1.1
44621	54.8	-42.6	ALL	MSLP	SUR	472	0	0	1.0	-0.2	1.1
44624	57.1	-21.3	ALL	MSLP	SUR	1122	3	0	1.2	-0.1	1.2
44726	58.8	-10.3	ALL	MSLP	SUR	1091	2	0	0.9	0.3	0.9
44727	57.9	-39.4	ALL	MSLP	SUR	1756	5	0	1.3	0.0	1.3
44728	60.3	-23.4	ALL	MSLP	SUR	1178	4	0	0.9	0.1	0.9
44742	43.2	-23.7	ALL	MSLP	SUR	476	38	8	1.7	0.3	1.7
44743	45.6	-14.6	ALL	MSLP	SUR	604	4	1	0.7	0.5	0.8
44760	30.9	-60.0	ALL	MSLP	SUR	354	0	0	0.7	0.5	0.9
44762	43.1	-23.1	ALL	MSLP	SUR	501	0	0	0.7	0.2	0.7
44768	60.1	-38.1	ALL	MSLP	SUR	865	0	0	1.0	0.0	1.0
44769	51.7	-42.3	ALL	MSLP	SUR	715	1	0	1.1	-0.2	1.1
44773	58.2	-36.9	ALL	MSLP	SUR	858	0	0	1.0	-0.2	1.0
44775	62.1	-33.3	ALL	MSLP	SUR	890	1	0	1.0	0.2	1.0
44777	55.6	-1.7	ALL	MSLP	SUR	97	2	2	4.1	-3.4	5.3
44779	45.1	-33.3	ALL	MSLP	SUR	775	5	1	1.0	0.1	1.0
44901	57.5	-56.3	ALL	MSLP	SUR	146	0	0	1.1	0.4	1.2
44911	56.8	-18.8	ALL	MSLP	SUR	58	0	0	0.7	0.4	0.9
44912	52.9	-45.9	ALL	MSLP	SUR	117	0	0	1.0	0.5	1.1
44924	61.3	-57.4	ALL	MSLP	SUR	13	0	0	6.6	3.2	7.4
44925	60.1	-54.2	ALL	MSLP	SUR	167	0	0	0.9	0.6	1.1
49707	37.1	-84.1	ALL	MSLP	SUR	5	0	0	0.5	-1.7	1.8
51636	44.7	-63.6	ALL	MSLP	SUR	25	0	0	0.8	-4.5	4.6
51637	44.7	-63.6	ALL	MSLP	SUR	6	6	100	0.0	0.0	0.0
61556	44.7	-63.6	ALL	MSLP	SUR	16	0	0	1.0	-4.1	4.2
61557	44.7	-63.6	ALL	MSLP	SUR	28	0	0	1.0	-3.7	3.8
62503	33.0	-14.1	ALL	MSLP	SUR	570	0	0	0.7	0.1	0.7
62515	45.0	-17.1	ALL	MSLP	SUR	649	0	0	0.6	0.2	0.7
62518	42.6	-14.5	ALL	MSLP	SUR	156	0	0	1.7	0.0	1.7
62552	53.7	-17.0	ALL	MSLP	SUR	781	3	0	1.3	-0.1	1.3
62553	47.8	-22.8	ALL	MSLP	SUR	651	3	0	1.4	0.0	1.4
62554	50.5	-18.7	ALL	MSLP	SUR	664	0	0	0.9	0.2	0.9
62555	45.9	-20.2	ALL	MSLP	SUR	649	0	0	0.7	0.0	0.7
62556	52.7	-15.8	ALL	MSLP	SUR	774	0	0	0.9	0.5	1.0
62697	53.9	-41.9	ALL	MSLP	SUR	897	38	4	1.9	-0.8	2.1
62712	54.6	-14.4	ALL	MSLP	SUR	674	0	0	0.8	0.4	0.9
62713	43.4	-26.5	ALL	MSLP	SUR	779	1	0	0.7	0.2	0.8
62803	59.0	-12.2	ALL	MSLP	SUR	1741	8	0	1.0	0.1	1.0
62804	55.4	-19.4	ALL	MSLP	SUR	747	0	0	1.0	-0.2	1.1

IDENTIFIER	LAT.	LONG.	HOUR	ELEM	LEVEL	NOBS	NGE	PGE	SD	BIAS	RMS
MEAN SEA LEVEL PRESSURE											
62927	51.7	-22.9	ALL	MSLP	SUR	132	0	0	1.6	0.6	1.7
64528	64.2	-30.6	ALL	MSLP	SUR	1723	5	0	1.1	-0.4	1.2
64561	54.8	-51.6	ALL	MSLP	SUR	897	3	0	1.2	-0.1	1.2
64563	60.7	-54.4	ALL	MSLP	SUR	1603	1	0	1.0	-0.2	1.1
65593	60.7	-25.4	ALL	MSLP	SUR	19	1	5	3.5	0.9	3.6
65594	60.4	-22.9	ALL	MSLP	SUR	1798	3	0	0.9	0.0	0.9
65596	51.6	-50.4	ALL	MSLP	SUR	679	1	0	1.2	-0.6	1.3
65597	58.5	-48.4	ALL	MSLP	SUR	1543	1	0	1.1	-0.5	1.2
65598	59.7	-56.5	ALL	MSLP	SUR	1479	7	0	1.0	-0.2	1.1
WIND SPEED											
29707	39.1	-48.4	ALL	SPEED	SUR	2	0	0	4.5	6.1	7.6
41530	31.5	-25.9	ALL	SPEED	SUR	256	0	0	1.2	-1.6	2.0
41613	22.7	-70.2	ALL	SPEED	SUR	204	0	0	1.2	-1.4	1.8
44621	54.8	-42.6	ALL	SPEED	SUR	462	0	0	2.2	0.2	2.2
44624	57.1	-21.3	ALL	SPEED	SUR	789	7	1	2.0	-0.5	2.1
44726	58.8	-10.3	ALL	SPEED	SUR	763	1	0	1.8	-1.6	2.4
44742	43.2	-23.7	ALL	SPEED	SUR	321	0	0	1.4	0.0	1.4
44762	43.1	-23.1	ALL	SPEED	SUR	330	0	0	1.7	-0.7	1.8
44767	62.4	-11.2	ALL	SPEED	SUR	1	0	0	0.0	-3.7	3.7
44773	58.2	-36.9	ALL	SPEED	SUR	833	0	0	1.7	0.1	1.7
49707	37.1	-84.1	ALL	SPEED	SUR	4	0	0	3.5	4.9	6.0
62518	42.6	-14.5	ALL	SPEED	SUR	27	0	0	1.1	-6.5	6.6
62552	53.7	-17.0	ALL	SPEED	SUR	741	0	0	1.5	-1.0	1.8
62553	47.8	-22.8	ALL	SPEED	SUR	641	0	0	1.6	-0.3	1.6
62697	53.9	-41.9	ALL	SPEED	SUR	146	0	0	3.5	-3.7	5.1
62803	59.0	-12.2	ALL	SPEED	SUR	517	1	0	3.3	-5.6	6.5
65594	60.4	-22.9	ALL	SPEED	SUR	1	0	0	0.0	4.4	4.4
WIND DIRECTION											
29707	39.1	-48.4	ALL	DIRN.	SUR	2	0	0	14.4	-2.3	14.6
41530	31.5	-25.9	ALL	DIRN.	SUR	164	0	0	12.7	15.8	20.3
41613	22.7	-70.2	ALL	DIRN.	SUR	190	0	0	16.1	8.1	18.0
44621	54.8	-42.6	ALL	DIRN.	SUR	306	0	0	21.0	-17.8	27.5
44624	57.1	-21.3	ALL	DIRN.	SUR	545	7	1	58.7	-20.3	62.1
44726	58.8	-10.3	ALL	DIRN.	SUR	458	1	0	20.7	-0.3	20.7
44742	43.2	-23.7	ALL	DIRN.	SUR	139	0	0	17.0	-8.5	19.0
44762	43.1	-23.1	ALL	DIRN.	SUR	207	0	0	25.5	-6.9	26.4
44767	62.4	-11.2	ALL	DIRN.	SUR	1	0	0	0.0	-105.1	105.1
44773	58.2	-36.9	ALL	DIRN.	SUR	619	0	0	20.6	-5.4	21.3
49707	37.1	-84.1	ALL	DIRN.	SUR	4	0	0	22.5	-16.5	27.9
62518	42.6	-14.5	ALL	DIRN.	SUR	26	0	0	17.1	17.4	24.4
62552	53.7	-17.0	ALL	DIRN.	SUR	580	0	0	17.4	1.5	17.5
62553	47.8	-22.8	ALL	DIRN.	SUR	528	0	0	15.2	3.7	15.6
62697	53.9	-41.9	ALL	DIRN.	SUR	97	0	0	74.8	40.2	84.9
62803	59.0	-12.2	ALL	DIRN.	SUR	360	1	0	42.1	-0.4	42.1
65594	60.4	-22.9	ALL	DIRN.	SUR	1	0	0	0.0	176.1	176.1

TABLE 9

MONTHLY MONITORING OF AIRCRAFT OBSERVATIONS (COSNA)
MONITORING CENTRE: BRACKNELL
MONTH: July, 1997

Monitoring procedures:
Period :One calendar month.

Data monitored :Statistics for each airline carrier.

Area monitored :40°N - 70°N, 60°W - 0°W.

Standard of comparison :Background field from Bracknell global model.

Observation times :All hours combined.

Level(s) monitored :300.0 - 150.0 hPa

Elements monitored :TEMP in °C ; WIND in m s^{-1}

Parameters monitored :N REP. :Number of observations received excluding duplicates.

:PG :Percentage of observations with gross errors.

:PR :Percentage of observations rejected by quality control including rejections from the duplicate check.

:PC :Percentage of observations with calm winds.

:RMS :Root Mean Square difference of observations from background values excluding those with gross errors in Temperature & vector wind.

:BIAS :Mean difference of observations from background values excluding those with gross errors in Temperature & vector wind.

GROSS ERROR LIMITS :10.0 °C ; 60 m s^{-1} Vector Wind

SELECTION CRITERIA :N REP $\geq$ 20

NO DATA AVAILABLE FOR JULY 1997

TABLE 10

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS (COSNA)
MONITORING CENTRE: BRACKNELL
MONTH: July, 1997

Monitoring procedures

Period		:One calendar month.
Data monitored		:Reports from selected radiosonde TEMPs.
Area monitored		:0°N - 90°N, 100°W - 40°E
Standard of comparison		:Background field from Bracknell global model.
Position		:Average latitude and longitude for period.
Observation times		:00, 12 UTC.
Level monitored		:100 hPa.
Element monitored		:GEOPOTENTIAL HEIGHT in metres
Parameters monitored	:NUM OBS	:Number of observations available at level shown during period.
	:NUM GROSS	:Number of gross errors at level shown during period.
	:SD	:SD of difference of observations from background values at level shown excluding those with gross errors.
	:BIAS	:Mean difference of observations from background values at level shown excluding those with gross errors.

GROSS ERROR LIMITS :Defined in Appendix I.1

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	SD	RMS	BIAS
DBBH	00	Z	100	16	0	16.4	18.2	-7.8
DBBH	12	Z	100	24	0	17.1	18.2	-6.4
DBLK	00	Z	100	1	0	0.0	17.0	17.0
DBLK	12	Z	100	26	0	17.5	22.2	13.7
EHOA	12	Z	100	15	0	8.3	8.3	-0.4
ENQT	00	Z	100	8	0	15.6	17.5	7.9
ENQT	12	Z	100	7	0	22.1	22.6	-4.7
FNOR	00	Z	100	14	0	8.4	8.6	1.9
FNOR	12	Z	100	15	0	10.1	13.8	-9.5
FNOU	00	Z	100	11	0	17.1	17.6	4.3
FNOU	12	Z	100	9	0	13.5	14.5	-5.3
FNPH	00	Z	100	12	0	11.3	12.3	-4.9
FNPH	12	Z	100	10	0	13.5	21.7	-17.0
FNRS	00	Z	100	12	0	10.3	10.7	2.9
FNRS	12	Z	100	14	0	7.7	16.9	-15.0
JBOA	00	Z	100	1	0	0.0	10.0	-10.0
JCCX	00	Z	100	1	0	0.0	4.0	-4.0
JDWX	00	Z	100	1	0	0.0	6.0	-6.0
JGQH	00	Z	100	1	0	0.0	2.0	-2.0
JIVB	00	Z	100	1	0	0.0	0.0	0.0
LDWR	00	Z	100	30	0	8.2	9.2	-4.2
LDWR	12	Z	100	29	0	24.9	28.3	-13.6
OXVH2	00	Z	100	21	0	13.3	17.0	-10.7
OXVH2	12	Z	100	22	0	13.8	16.4	-8.8
OXYH2	00	Z	100	18	0	12.0	18.6	-14.2
OXYH2	12	Z	100	17	0	13.8	14.5	-4.6
SHIPAF	00	Z	100	1	0	0.0	45.0	45.0
SHIPS	00	Z	100	1	0	0.0	24.0	-24.0
UCKZ	00	Z	100	1	0	0.0	22.0	22.0
V2EZ	00	Z	100	8	0	20.5	21.9	-7.8
V2EZ	12	Z	100	8	0	11.3	15.0	-9.9
V2VM	00	Z	100	14	0	18.5	19.2	-5.1
V2VM	12	Z	100	15	0	14.7	16.2	-6.6
WTEC	00	Z	100	3	0	13.1	23.4	-19.3
WTEC	12	Z	100	5	0	27.9	37.3	-24.8
WTEU	00	Z	100	1	0	0.0	3.0	3.0
XXBA	00	Z	100	1	0	0.0	25.0	25.0
XXBA	12	Z	100	3	0	9.6	39.2	38.0
0V2VM	00	Z	100	1	0	0.0	12.0	-12.0
03953	00	Z	100	31	0	10.6	16.7	12.9
03953	12	Z	100	30	0	11.2	11.3	1.5
04018	00	Z	100	28	0	16.9	17.9	5.8
04018	12	Z	100	31	0	13.2	15.5	8.0
04220	00	Z	100	30	0	10.7	10.8	1.5
04220	12	Z	100	31	0	9.0	11.6	7.4
04270	00	Z	100	29	0	11.3	12.2	-4.5
04270	12	Z	100	31	0	17.0	18.0	-5.8
04339	00	Z	100	30	0	13.3	13.3	0.4
04339	12	Z	100	30	0	12.6	13.2	4.1
04360	00	Z	100	27	0	14.2	14.3	-1.3
04360	12	Z	100	25	0	9.7	11.0	5.2
08001	00	Z	100	13	1	19.2	19.4	2.8
08001	12	Z	100	16	1	9.8	19.9	-17.3
08508	00	Z	100	30	1	8.3	8.8	3.0
08508	12	Z	100	31	0	11.1	15.0	-10.0
08522	00	Z	100	30	0	11.6	16.9	12.3
08522	12	Z	100	29	0	13.3	13.9	-4.0
60020	00	Z	100	29	0	13.0	16.5	10.1
60020	12	Z	100	31	0	12.7	13.3	-4.0
71600	00	Z	100	30	0	9.1	13.4	-9.9

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	SD	RMS	BIAS
71600	12	Z	100	31	0	10.4	18.0	-14.7
72201	00	Z	100	26	0	19.1	20.2	6.6
72201	12	Z	100	26	0	30.4	31.7	9.0
72402	00	Z	100	27	0	15.7	21.8	15.1
72402	12	Z	100	29	0	20.0	27.3	18.5
74494	00	Z	100	29	0	15.0	24.8	19.7
74494	12	Z	100	31	0	21.9	33.9	25.9
78016	00	Z	100	26	0	12.1	12.2	1.1
78016	12	Z	100	27	0	9.6	9.6	0.4

TABLE 11

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS (COSNA)
MONITORING CENTRE: BRACKNELL
MONTH: July, 1997

Monitoring procedures:

Period		:One calendar month.
Data monitored		:Reports from selected radiosonde TEMPs.
Area monitored		:0°N - 90°N, 100°W - 40°E
Standard of comparison		:Background field from Bracknell global model.
Position		:Average latitude and longitude for period.
Observation times		:00, 12 UTC.
Level monitored		:500 hPa.
Element monitored		:GEOPOTENTIAL HEIGHT in metres
Parameters monitored	:NUM OBS	:Number of observations available at level shown during period.
	:NUM GROSS	:Number of gross errors at level shown during period.
	:SD	:SD of difference of observations from background values at level shown excluding those with gross errors.
	:BIAS	:Mean difference of observations from background values at level shown excluding those with gross errors.

GROSS ERROR LIMITS :Defined in Appendix I.1

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	SD	RMS	BIAS
DBBH	00	Z	500	21	0	12.2	14.7	-8.2
DBBH	12	Z	500	23	0	10.4	15.9	-12.0
DBLK	00	Z	500	1	0	0.0	0.0	0.0
DBLK	12	Z	500	26	0	24.6	26.3	-9.3
EHOA	00	Z	500	1	0	0.0	20.0	20.0
EHOA	12	Z	500	15	0	7.5	15.8	13.9
ENQT	00	Z	500	8	0	5.9	6.0	-0.6
ENQT	12	Z	500	7	0	18.3	18.5	-2.4
F/OU	00	Z	500	1	0	0.0	21.0	21.0
FNOR	00	Z	500	14	0	9.7	9.7	-0.2
FNOR	12	Z	500	15	0	6.8	7.3	2.8
FNOU	00	Z	500	11	0	7.5	7.9	2.4
FNOU	12	Z	500	9	0	5.6	5.8	1.3
FNPH	00	Z	500	13	0	8.7	8.8	-1.5
FNPH	12	Z	500	11	0	8.8	10.5	-5.7
FNRS	00	Z	500	12	0	7.2	7.5	-2.3
FNRS	12	Z	500	15	0	8.1	9.0	-4.0
JBOA	00	Z	500	1	0	0.0	10.0	10.0
JCCX	00	Z	500	1	0	0.0	10.0	10.0
JDWX	00	Z	500	1	0	0.0	3.0	3.0
JGQH	00	Z	500	1	0	0.0	27.0	27.0
JIVB	00	Z	500	1	0	0.0	2.0	2.0
LDWR	00	Z	500	30	0	8.6	8.6	0.3
LDWR	12	Z	500	29	0	8.2	8.8	-3.1
OXVH2	00	Z	500	23	0	13.9	17.0	-9.8
OXVH2	12	Z	500	23	0	13.3	16.2	-9.3
OXYH2	00	Z	500	21	0	11.5	14.7	-9.2
OXYH2	12	Z	500	19	0	12.1	14.4	-7.7
SHIPAF	00	Z	500	1	0	0.0	0.0	0.0
SHIPS	00	Z	500	1	0	0.0	3.0	-3.0
UCKZ	00	Z	500	1	0	0.0	22.0	-22.0
V2EZ	00	Z	500	9	0	13.8	14.1	-2.6
V2EZ	12	Z	500	8	0	12.1	12.4	-2.5
V2VM	00	Z	500	16	0	14.5	17.2	-9.3
V2VM	12	Z	500	16	0	11.7	15.2	-9.7
WTEC	00	Z	500	4	0	8.3	16.5	-14.3
WTEC	12	Z	500	5	0	7.9	16.4	-14.4
WTEU	00	Z	500	1	0	0.0	22.0	22.0
XXBA	00	Z	500	1	0	0.0	1.0	-1.0
XXBA	12	Z	500	3	0	5.8	6.7	3.3
0V2VM	00	Z	500	1	0	0.0	16.0	-16.0
03953	00	Z	500	31	0	7.6	14.0	11.7
03953	12	Z	500	31	0	9.6	10.3	3.6
04018	00	Z	500	31	0	13.7	14.6	4.9
04018	12	Z	500	31	0	13.0	13.2	1.9
04220	00	Z	500	30	0	13.9	16.8	-9.5
04220	12	Z	500	31	0	9.6	11.0	-5.4
04270	00	Z	500	29	0	11.8	13.2	-5.9
04270	12	Z	500	30	0	12.5	14.8	-7.9
04339	00	Z	500	29	0	14.9	16.5	-7.1
04339	12	Z	500	30	0	9.8	10.9	-4.8
04360	00	Z	500	26	0	10.9	13.6	-8.1
04360	12	Z	500	26	0	9.1	11.3	-6.7
08001	00	Z	500	15	1	12.2	12.2	0.7
08001	12	Z	500	18	0	31.4	31.6	-3.1
08508	00	Z	500	31	0	6.7	6.8	1.0
08508	12	Z	500	31	0	7.5	8.2	-3.2
08522	00	Z	500	30	0	6.8	7.2	2.3
08522	12	Z	500	29	0	7.1	7.6	-2.7
60020	00	Z	500	29	0	9.8	12.1	7.2

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	SD	RMS	BIAS
60020	12	Z	500	31	0	10.6	12.4	6.4
71600	00	Z	500	31	0	8.0	12.7	-9.8
71600	12	Z	500	31	0	9.0	9.3	-2.1
72201	00	Z	500	27	0	9.2	9.4	2.2
72201	12	Z	500	25	0	7.7	7.9	1.8
72402	00	Z	500	30	0	9.7	9.7	-0.2
72402	12	Z	500	30	0	9.1	10.8	5.8
74494	00	Z	500	30	0	10.0	10.5	-3.1
74494	12	Z	500	31	0	9.6	10.4	-4.0
78016	00	Z	500	23	0	8.0	10.0	6.0
78016	12	Z	500	26	0	5.4	11.3	9.9

TABLE 12

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS (COSNA)
MONITORING CENTRE: BRACKNELL
MONTH: July, 1997

Monitoring procedures

Period		:One calendar month.
Data monitored		:Reports from selected radiosonde TEMPs.
Area monitored		:0°N - 90°N, 100°W - 40°E
Standard of comparison		:Background field from Bracknell global model.
Position		:Average latitude and longitude for period.
Observation times		:00, 12 UTC.
Level monitored		:100 hPa.
Element monitored		:VECTOR WIND in m s^{-1}
Parameters monitored	:NUM OBS	:Number of observations available at level shown during period.
	:NUM GROSS	:Number of gross errors at level shown during period.
	:UBIAS,VBIAS	:Mean difference of observations of U and V components from background values at level shown excluding those with gross errors.
	:RMS	:Root Mean Square difference of observations from background values at level shown excluding those with gross errors.

GROSS ERROR LIMITS :Defined in Appendix I.2

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	% REJ	RMS	UBIAS	VBIAS
DBBH	00	V	100	16	0	0	0.0	-0.6	1.1
DBBH	12	V	100	23	0	0	1.5	-0.6	-0.7
DBLK	00	V	100	1	0	0	1.7	-0.9	1.0
DBLK	12	V	100	23	0	0	1.7	0.3	-0.9
EHOA	12	V	100	15	0	0	1.4	-0.5	0.7
ENQT	00	V	100	8	0	0	3.4	0.5	2.0
ENQT	12	V	100	6	0	0	3.4	-2.6	0.7
F/OU	00	V	100	1	0	0	3.4	-0.1	2.3
FNOR	00	V	100	14	0	0	3.4	-0.5	0.3
FNOR	12	V	100	15	0	0	2.2	-1.2	-0.9
FNOÙ	00	V	100	10	0	0	2.3	0.0	-0.4
FNOÙ	12	V	100	9	0	0	2.6	-1.3	1.4
FNPH	00	V	100	11	1	8	2.6	0.5	5.1
FNPH	12	V	100	10	0	0	3.0	0.5	0.1
FNRS	00	V	100	12	0	0	1.9	-0.7	0.1
FNRS	12	V	100	14	0	0	2.0	-0.2	-1.6
JBOA	00	V	100	1	0	0	3.6	1.8	-3.4
JCCX	00	V	100	1	0	0	3.6	-0.1	-2.7
JDWX	00	V	100	1	0	0	2.3	1.4	-1.5
JGQH	00	V	100	1	0	0	2.3	2.2	-5.3
JIVB	00	V	100	1	0	0	2.3	0.0	-0.4
LDWR	00	V	100	30	0	0	2.2	0.7	0.7
LDWR	12	V	100	30	0	0	1.9	1.1	0.2
OXVH2	00	V	100	21	0	0	1.5	-0.4	0.4
OXVH2	12	V	100	21	0	0	1.5	-0.1	0.1
OXYH2	00	V	100	18	0	0	1.7	-0.7	0.6
OXYH2	12	V	100	17	0	0	2.0	-0.4	-0.2
SHIPAF	00	V	100	1	0	100	1.8	33.3	-26.3
SHIPS	00	V	100	1	0	0	1.8	-4.4	0.1
UCKZ	00	V	100	1	0	0	1.8	-0.9	-1.5
V2EZ	00	V	100	8	0	0	3.2	0.3	0.3
V2EZ	12	V	100	8	0	0	3.2	0.3	-0.2
V2VM	00	V	100	15	0	0	3.2	0.4	1.2
V2VM	12	V	100	15	0	6	3.0	0.5	0.3
WTEC	00	V	100	3	0	0	2.5	-1.6	-0.3
WTEC	12	V	100	5	0	0	2.5	1.5	1.9
WTEU	00	V	100	1	0	0	2.5	-1.5	-4.7
XXBA	00	V	100	1	0	0	2.5	3.3	-2.0
XXBA	12	V	100	1	0	0	2.5	-6.3	1.7
0V2VM	00	V	100	1	0	0	2.5	-0.5	-5.0
03953	00	V	100	30	0	0	1.7	0.4	1.7
03953	12	V	100	29	0	0	2.1	-0.4	1.0
04018	00	V	100	28	0	0	1.8	-0.7	-0.4
04018	12	V	100	30	0	0	1.7	-1.2	0.2
04220	00	V	100	30	0	0	1.6	-0.5	1.0
04220	12	V	100	31	0	0	1.7	-0.4	0.1
04270	00	V	100	29	0	0	1.5	-0.6	1.2
04270	12	V	100	31	0	0	1.7	-0.9	0.0
04339	00	V	100	30	0	0	1.5	-0.3	0.4
04339	12	V	100	30	0	3	1.9	-1.4	0.4
04360	00	V	100	27	0	0	4.5	-0.6	0.6
04360	12	V	100	23	0	0	2.0	-0.1	0.8
08001	00	V	100	14	0	0	9.3	0.3	2.2
08001	12	V	100	17	0	0	1.8	0.1	1.3
08508	00	V	100	31	0	0	3.4	2.0	0.4
08508	12	V	100	31	0	0	2.3	0.8	0.0
08522	00	V	100	30	0	0	2.1	1.0	0.0
08522	12	V	100	29	0	0	2.1	1.1	-0.3
60020	00	V	100	21	0	0	7.4	-0.9	-1.6
60020	12	V	100	23	0	0	2.2	0.2	-1.0

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	% REJ	RMS	UBIAS	VBIAS
71600	00	V	100	29	0	0	2.2	-0.2	-0.6
71600	12	V	100	31	0	0	1.9	0.0	-0.5
72201	00	V	100	26	0	0	1.2	1.8	1.8
72201	12	V	100	24	0	0	2.5	1.1	0.5
72402	00	V	100	27	0	0	1.3	-1.2	0.4
72402	12	V	100	28	0	0	3.6	-1.4	0.1
74494	00	V	100	29	0	0	2.2	-0.7	0.4
74494	12	V	100	31	0	0	2.2	-0.2	0.1
78016	00	V	100	21	0	0	3.0	-0.1	-0.4
78016	12	V	100	25	0	0	2.4	2.3	0.2

TABLE 13

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS (COSNA)
MONITORING CENTRE: BRACKNELL
MONTH: July, 1997

Monitoring procedures

Period		:One calendar month.
Data monitored		:Reports from selected radiosonde TEMPs.
Area monitored		:0°N - 90°N, 100°W - 40°E
Standard of comparison		:Background field from Bracknell global model.
Position		:Average latitude and longitude for period.
Observation times		:00, 12 UTC.
Level monitored		:500 hPa.
Element monitored		:VECTOR WIND in m s^{-1}
Parameters monitored	:NUM OBS	:Number of observations available at level shown during period.
	:NUM GROSS	:Number of gross errors at level shown during period.
	:UBIAS,VBIAS:	Mean difference of observations of U and V components from background values at level shown excluding those with gross errors.
	:RMS	:Root Mean Square difference of observations from background values at level shown excluding those with gross errors.

GROSS ERROR LIMITS :Defined in Appendix I.2

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	% REJ	RMS	UBIAS	VBIAS
DBBH	00	V	500	20	0	0	0.0	-0.1	0.6
DBBH	12	V	500	23	0	0	2.5	0.3	-0.8
DBLK	00	V	500	1	0	0	2.4	0.4	4.4
DBLK	12	V	500	26	0	3	2.4	-0.2	0.6
EHOA	00	V	500	1	0	0	4.0	4.3	-7.6
EHOA	12	V	500	15	0	0	4.0	0.0	0.8
ENQT	00	V	500	8	0	0	2.0	-1.2	-0.3
ENQT	12	V	500	7	0	0	2.0	-1.2	-0.5
FNOR	00	V	500	14	0	0	2.0	-0.3	-0.6
FNOR	12	V	500	15	0	0	1.9	-1.2	-1.0
FNOU	00	V	500	11	0	0	3.2	-0.7	-1.2
FNOU	12	V	500	9	0	0	3.1	-0.8	-0.3
FNPH	00	V	500	13	0	0	3.1	0.4	-1.4
FNPH	12	V	500	11	0	0	2.3	-1.6	-0.2
FNRS	00	V	500	12	0	0	4.5	-0.7	0.0
FNRS	12	V	500	13	0	0	2.2	-0.7	-0.3
JBOA	00	V	500	1	0	0	1.7	-0.1	-1.4
JCCX	00	V	500	1	0	0	1.7	-0.9	0.0
JDWX	00	V	500	1	0	0	2.5	-0.1	-1.2
JGQH	00	V	500	1	0	0	2.5	2.9	-4.0
JIVB	00	V	500	1	0	0	2.5	0.1	1.0
LDWR	00	V	500	30	0	0	2.0	0.4	0.4
LDWR	12	V	500	30	0	0	2.3	-0.2	0.2
OXVH2	00	V	500	23	0	0	2.3	-0.4	1.5
OXVH2	12	V	500	23	0	0	3.0	-0.5	0.1
OXYH2	00	V	500	20	0	0	4.1	-0.1	0.6
OXYH2	12	V	500	19	0	0	2.6	-0.6	0.2
SHIPAF	00	V	500	1	0	0	3.5	2.8	-5.5
SHIPS	00	V	500	1	0	0	3.5	-2.5	0.7
UCKZ	00	V	500	1	0	0	3.5	0.2	-1.7
V2EZ	00	V	500	9	0	0	5.4	0.6	1.0
V2EZ	12	V	500	8	0	0	3.1	2.4	0.2
V2VM	00	V	500	16	0	0	3.1	-0.1	-0.7
V2VM	12	V	500	16	0	6	2.1	0.7	0.0
WTEC	00	V	500	4	0	0	2.7	2.4	-1.4
WTEC	12	V	500	5	0	0	2.7	0.9	0.6
WTEU	00	V	500	1	0	0	2.7	2.9	-4.2
XXBA	00	V	500	1	0	0	2.7	3.1	-2.8
XXBA	12	V	500	3	0	0	2.7	-1.8	0.2
0V2VM	00	V	500	1	0	0	2.7	-3.0	-1.1
03953	00	V	500	31	0	0	2.1	0.9	-0.2
03953	12	V	500	31	0	0	2.4	0.2	0.2
04018	00	V	500	31	0	0	3.9	0.7	0.9
04018	12	V	500	31	0	0	3.6	0.8	0.4
04220	00	V	500	30	0	0	3.2	0.8	1.0
04220	12	V	500	31	0	0	4.8	0.7	1.6
04270	00	V	500	29	0	0	3.3	-0.5	1.9
04270	12	V	500	30	0	0	2.3	0.3	0.4
04339	00	V	500	29	0	3	3.3	-0.6	0.4
04339	12	V	500	30	0	3	6.1	-0.4	0.8
04360	00	V	500	26	0	0	4.9	0.5	-0.1
04360	12	V	500	26	0	0	2.9	0.0	-0.3
08001	00	V	500	16	0	0	4.4	-0.1	-0.6
08001	12	V	500	18	0	0	2.6	-1.9	-1.2
08508	00	V	500	31	0	0	3.4	0.3	-0.1
08508	12	V	500	31	0	0	2.2	-0.7	-0.4
08522	00	V	500	30	0	0	2.4	-0.1	0.2
08522	12	V	500	29	0	0	3.2	-0.9	-0.5
60020	00	V	500	16	0	0	2.5	-0.2	1.4
60020	12	V	500	21	0	0	2.6	0.9	-0.1

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	% REJ	RMS	UBIAS	VBIAS
71600	00	V	500	31	0	0	2.9	-0.3	0.0
71600	12	V	500	31	0	0	3.0	1.4	0.5
72201	00	V	500	27	0	0	3.0	0.6	-0.3
72201	12	V	500	24	0	0	2.3	0.0	-0.1
72402	00	V	500	29	0	0	2.4	-0.2	-0.3
72402	12	V	500	30	0	0	2.9	0.4	0.3
74494	00	V	500	30	0	0	2.2	-0.5	0.0
74494	12	V	500	31	0	0	2.7	-1.0	1.7
78016	00	V	500	23	0	0	3.1	0.0	-0.4
78016	12	V	500	26	0	0	3.1	0.2	1.0

APPENDIX I

1. The gross error limits for observation minus background differences of geopotential height in Tables 5, 10 and 11 are:-

Level (hPa)	Geopotential height (metres)
1000	100
850	100
700	100
500	150
400	175
300	200
250	225
200	250
150	275
100	300
70	375
50	400
30	450

The weighted RMS values used in Table 5,10 and 11 are calculated using the following weights:-

Level (hPa)	Weight
1000	3.70
850	3.40
700	2.90
500	2.20
400	1.90
300	1.60
250	1.50
200	1.37
150	1.19
100	1.00
70	0.87
50	0.80
30	0.64

2. The gross error limits for observation minus background differences of windspeed in Tables 6,12 and 13 are:-

Level (hPa)	Windspeed m s^{-1}
1000	35
850	35
700	40
500	45
400	50
300	60
250	60
200	50
150	50
100	45